THE IRON TRADE REVIEW

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THE WEEK IN IRON CIRCLES.

THE MARKET AT LARGE.

Sales of steel billets amounting to about 50,000 tons are the feature of the week's market. Independent sheet and tin plate plants having their own bar mills were buyers, as were also certain steel interests whose steel making capacity is not equal to the demands of finishing mills. The significance of such sales by the Clairton interest in the supposed pendency of negotiations for its transfer to the steel corporation will be variously interpreted. At Sharon, Pa., another limited source of steel supply will be available to independent producers of sheets in the near future. The Pittsburg billet sales of the past week were on the basis of $30.50 to $31 for early delivery Pessemer, and $31.50 to $32 for prompt open-hearth steel, with deliveries in the second half at $1 a ton less. Pig iron is at a standstill so far as foundry grades are concerned, but there is some buying of basic and gray forge, the latter with No. 4 foundry being in demand for cast iron pipe work. The largest maker of cast pipe is reported to be in the market for 30,000 tons of pig iron. Recent sales of cast pipe include 11,000 tons to St. Louis and there is pending a 5,000-ton contract with Minneapolis, while at Kansas City figures are being taken on 3½ miles of 36-inch pipe. Offerings of Eastern basic iron at $21, Pittsburg, are reported, or somewhat below recent sales of Virginia iron. For early delivery gray forge has sold at $20.50 delivered at Mahoning Valley mill. Southern forge is quoted $20.35, Pittsburg, for early shipment, while $19.85 is the official price for the second half. Offers from outside furnaces are reported at $19.35, Pittsburg, for the second half. The production of pig iron has increased materially in the past month and if the improvement in coke supply continues the supply of iron will soon be fully adequate to meet all requirements without drawing upon foreign sources. On April 1 pig iron production was at the rate of more than 19,500,000 tons a year, being 376,000 tons a week, or 23,000 tons more than on March 1 and Jan. 1, February being less than the month preceding and that following. Imports are declining, and most of the iron now coming in is on orders placed in the early weeks of the year. Southern producers are evidently determined to retake trade which has been going from them in the East and their prices have brought some reductions in Eastern furnace quotations. Chicago reports a sale of 12,000 tons of basic for delivery in the next three months at $21.85. The week has been somewhat quieter in finished material than many that have preceded, but a large tonnage is pending, particularly in bars. Agricultural buying has begun and in implement shapes has been of fair proportions. Something has been done in bars, but the larger contracts are still to be placed. A meeting of agricultural implement and machinery manufacturers at Chicago, this week, may result in a better basis for this trade, which has not been as healthy as prosperity conditions would seem to warrant. If such an understanding should be reached, agricultural machinery manufacturers will no doubt make their contracts for steel in the near future. Crop prospects, from an April standpoint, could scarcely be better. The natural gas and oil interests of Western Pennsylvania have laid out a large program of pipe laying for this year, fully 100,000 tons for such work being figured on, guaranteeing full operations to wrought pipe mills. Rail business continues to come to the mills, and November deliveries are now the earliest most makers can promise. The Lackawanna mill is not likely to roll rails much before the middle of the year. While structural operations are heavy and buying has been good for railroad account and for industrial structures, the money situation has undoubtedly held up some projects in office building lines.

PITTSBURG.

OFFICE OF *The Iron Trade Review*,
429 PARK BUILDING, April 15.

There have been heavy purchases of both Bessemer and open-hearth billets during the week, the aggregate sales amounting to about 50,000 tons, deliveries on several contracts running to the end of the year. The Bessemer billets for early delivery were sold on a basis of $30.50 to $31, at mill, Youngstown and Wheeling, while for future delivery $29.50 to $30 was paid. Open-hearth billets for early delivery were sold at $31.50 to $32, Pittsburg, while for future delivery $30.50 to $31 was paid. Some of this steel went to independent sheet and tin plate mills operating their own sheet bar mills, while a large tonnage of the steel for early shipment was taken by steel producers who are not making sufficient to supply their finishing mills. The major portion of the tonnage of open-hearth steel was sold by the Clairton Steel Co., now the largest independent producer of billets in the country. The new steel plant of the Sharon Steel Hoop Co., at Sharon, Pa., will be placed in operation in a few days, and as the output of this plant will largely consist of sheet bars it will meet the long felt wants of the independent sheet mills not having their own bar mills.

The natural gas and oil trade of Western Pennsylvania, West Virginia and Ohio this year will consume about 100,000 tons of pipe and casing, nearly all of this material being used in laying new lines. One of the large local gas companies is figuring on laying a line of 60 miles with 20-inch pipe, while the gas interests of the Standard Oil Co. are figuring on a line 120 miles in length with a still larger size of pipe. Large orders still to be placed will call for fully 50,000 tons of material, while the consumption of the Standard Oil Co. for oil lines is estimated at 35,000 tons. The above estimate of 100,000 tons for these interests this year is therefore conservative. There is thus assurance of a large volume of desirable trade to the pipe mills of the country.

There is little doubt that all negotiations for the purchase of the Jones & Laughlin Steel Co. by the United States Steel Corporation are off and this concern is now going ahead with the improvement program outlined some time ago, which was held up by the negotiations. Contracts for the equipment and machinery for two additional blast furnaces are about to be placed and the stacks will be hurried to completion.

The pig iron market continues very quiet, sales being mostly limited to small lots for early deliveries. It has been reported that the quotations of the Southern furnaces are being shaded 50 cents a ton, but very little business is being done at these prices. Eastern basic is being offered in this market at $21 for early delivery, but is finding no buyers. Large buyers of Bessemer iron are still holding off, believing that better quotations will be made in the near future, but as yet the valley furnacemen have not shaded their prices for second half delivery.

The sheet and tin plate market is very firm. The American Tin Plate Co. is almost entirely sold up to August 1, jobbers and independents securing premiums from 10 cents to 25 cents a box on early deliveries. The demand for the heavier gauges of sheets is very strong and early deliveries are made by the independent mills at premiums of $2 to $3 a ton. At the meeting of the shafting manufacturers held last week no change in discounts was made. The volume of business on the books of the manufacturers was reported larger than at this time last year.

The annual convention of the Amalgamated Association of Iron, Steel & Tin Plate Workers opened this week at Columbus, O. An effort will probably be made to have the limit of output removed in sheet and tin plate mills, which will place the union mills on a parity with the non-union mills. Officials of the Amalgamated Association believe that by this move more of the union mills of the American Tin Plate Co. and the American Sheet Steel Co. will be operated during dull seasons and the independent mills will be in better position to compete with the non-union mills of these two companies.

PIG IRON.—We note the sale of 2,000 tons of gray forge iron for early shipment to mills in the Youngstown, O., district on a basis of $20.50 delivered at the mill. Southern forge for early shipment amounting to 500 tons was sold at $20.35, Pittsburg. For delivery during the second half of the year the Southern association price is $19.85, but it is reported that some of the furnaces outside of the association are willing to take business on a basis of $19.35. The association price on No. 2 foundry is $21.35, but offerings of outside furnaces are also reported at 50 cents below this price. Eastern basic is being offered in this market at $21, which is somewhat below the price of the Virginia furnaces and considerably below the quotations of the Northern producers. No large sales of Bessemer iron have been reported, but the Valley furnaces are holding their product firmly at $20 for second half delivery. The first of the three stacks of the Clairton Steel Co., Clairton, Pa., will be blown in this week. It has an estimated capacity of 500 tons. It will operate on basic iron and its entire output will be consumed at the steel plant of the company. We make the following quotations:

Bessemer, Valley	$20 50 to 21 50
Bessemer, Pittsburg	21 35 to 22 35
No. 1 Foundry	22 75 to 23 25
No. 2 Foundry	22 00 to 22 50
Gray Forge, Pittsburg	20 60 to 20 85
Chilled Basic, Valley	21 00 to 21 25
Chilled Basic, Pittsburg	21 75 to 22 00

STEEL.—The steel market was unusually active during the past week, the aggregate sales of Bessemer and open-hearth billets amounting to about 50,000 tons. The Bessemer billets for early delivery were sold on a basis of $30.50 to $31, at mill, Wheeling and Youngstown, while for future delivery large lots were placed at $29.50 to $30. The open-hearth billets were sold at prices ranging from $30.50 to $32, according to the delivery and size of the order. The demand for rods is strong and the offerings are limited. Open-hearth rods are held at $37 to $37.25 and Bessemer at $36 to $36.25.

FERRO-MANGANESE.—The market continues very quiet and offerings are limited entirely to the English product. Fifty ton lots and over are being quoted at $50 and smaller lots are held at $52.50.

SPELTER.—The spelter market continues practically unchanged but firm. Prime Western grades in large lots are held at 5.50c to 5.53½c, delivered Pittsburg.

MUCK BAR.—We note the sale of 500 tons of Western Pennsylvania bars at $35.75, Pittsburg. Most of the Western mills are holding their product at $36, while one large concern will not sell below $36.50.

SKELP.—There is little doing in skelp, as deliveries before July 1 are not to be had and there is no inquiry for future deliveries. Steel skelp, grooved and sheared, is held at 2.05c, while iron is quoted at 2.10c to 2.15c.

RAILS AND TRACK MATERIAL.—It is not probable that the rail mill of the Lackawanna Steel Co. at Stony Point, N. Y., will be placed in operation on May 1, although when orders were booked it was believed that the mill would be running at that time. Much remains to be done and the mill will not start before the middle of the year. Railroads are buying spikes very heavily, two large orders aggregating 500 tons having been placed during the week on a basis of 2.15c, Pittsburg. We quote as follows: Standard sections, 50 pounds and over, in lots of 500 tons and over, $28; car lots and less than 500 tons, $30; less than car lots, $32; light rails, 8 pounds in carload lots, $39; less than carload lots, $40; 12, 16 and 20 pounds, $36; 25 to 40 pounds, $36. Track materials: Spikes, 2.15c to 2.20c; track bolts, square heads, 2.05c; hexagon heads, 2.65c; fish plates, 1.60c on orders accompanying large rails contracts, otherwise 2c to 2.10c is asked.

PLATES.—The plate situation remains practically unchanged. All of the Western mills have orders on their books to take care of the output of the next six months, and small lots for early deliveries can only be placed at premiums from $3 to $5 per ton. We make the following quotations: Tank plates, ¼-inch thick and up to 100 inches in width, 1.60c at mill, Pittsburg; flange and boiler steel, 1.75c; marine, ordinary firebox, A. B. M. A. specifications, 1.80c; still bottom steel, 1.80c; locomotive firebox, not less than 2.10c, and it ranges in price to 3c. Plate more than 100 inches, 5c extra 100 pounds. Plates 3-16 of an inch in thickness, $2 extra; gauges Nos. 7 and 8, $3 extra. These quotations are based on carload lots, with 5c extra a hundred pounds for less than carload lots. Terms, net cash, in 30 days.

BARS.—From present indications the large agricultural implement manufacturers will close for their year's requirements the latter part of this month or early next month. Early crop reports are very favorable and the tonnage will equal and will possibly exceed that placed last year. We quote: Bessemer steel bars, 1.60c; open-hearth, 1.70c; plow beams and cultivator beams, 1.60c, net; channels, angles, zees and tees, Bessemer under 3 inches, 1.70c; over 3 inches, 1.80c; bar iron, 1.80c to 1.85c, Youngstown, or 1.84¼ to 1.89¼c, Pittsburg, with freight added to point of delivery from Youngstown. Hoops and bands are quoted at 1.90c, full extras, in 250-ton lots and over, and 2c in less than 250-ton lots.

STRUCTURAL MATERIAL.—Considerable small business has been placed with local erectors during the last few days, but the uncertainty of the labor situation is holding up numerous large orders. Prices remain firm and unchanged as follows: Beams and channels, 3 to 15 inches, 1.60c; 18 to 24 inches, 1.70c; tees, 1.65c; zees, 1.60c; angles from 3 to 16 inches, 1.60c; universal mill plates, 1.60c.

PIPES AND TUBES.—The general situation is better than ever before in the history of the trade and jobbers are securing premiums on small lots for early shipment. The laying of new oil and gas lines this year will require fully 100,000 tons of material and both the National Tube Co. and some of the independent mills will share in this business. Discounts to consumers, plus the freight to destination, in carload lots to consumers, are revised as follows:

MERCHANT PIPE.	Steel		Wrought Iron	
	Black Percent.	Galv. Percent.	Black Percent.	Galv. Percent.
⅛, ¼ and ⅜ inch	68	58	65	55
½ inch	70	60	67	57
¼ to 6 inch	75	65	72	62
7 to 12 inch	69	59	66	56
Plugged and Reamed				
1 to 4 inch	73	63	70	60
Cut 3 to 6 feet				
⅛, ¼ and ⅜ inch	63	52	60	49
½ inch	65	54	62	51
¼ to 6 inch	71	60	68	57
7 to 12 inch	65	53	61	50
Cut 6 feet and longer				
⅛, ¼ and ⅜ inch	64	53	61	50
½ inch	66	55	63	52
¼ to 6 inch	72	61	69	58
7 to 12 inch	66	54	62	51
Extra Strong Plain End				
⅛ to 8 inch	67	57	63	53
Threads only	66	56	62	52
Threads and Couplings	65	55	61	51
Double Extra Strong Plain End				
½ to 8 inch	59	49	55	45
Threads only	58	48	54	44
Threads and Couplings	57	47	53	43

NOTE: Orders for less than carload will be charged at 12½ percent advance. Extra and Double Extra Strong Cut Lengths, lower random discounts by 10 percent net for 6 feet and longer, and 15 percent net for 3 to 6 feet.

BOILER TUBES.

Steel.

	Percent
1 to 1½ inches	45
2¼ to 6 inches	62½
1¾ to 2¼ and 6 to 13 inches	52½

Iron.

	Percent.
1 to 1½ inches	36½
2¼ to 6 inches	48½
1¾ to 2¼ and 6 to 13 inches	38½

CASING.

	S. and S. Percent.
2 to 3 inches	58
3¼ to 4 inches	60
4¼ to 12½ inches	68

SHEETS.—The demand for the heavier gauges of black sheets and galvanized sheets is very strong and independents are securing premiums for early deliveries. In the tin plate trade the largest producer has orders booked to August 1, and independent mills are securing premiums for early shipment. Our quotations in 500 bundle lots and over, on black sheets are as follows: No. 28, 2.75c; No. 27, 2.65c; No. 26, 2.55c; Nos. 22 and 24, 2.45c; Nos. 18 and 20, 2.35c; Nos. 14 and 16, 2.25c; Nos. 10 and 12, 2.10c to 2.15c. Galvanized: No. 16, 2.60c; No. 18, 2.85c; No. 26, 3.35c; No. 27, 3.60c; No. 28, 3.85c; No. 29, 4.35c; No. 30, 4.50c.

WIRE AND WIRE NAILS.—The general situation is good and prices are firm and unchanged. Jobbers report that the buying of nails is very heavy and a slight advance is shortly looked for. We quote: Wire nails, carload lots, to jobbers, f. o. b. cars, Pittsburg, $2; plain wire, carload lots, $1.90; barb wire, carload lots, $2.30; staples, carload lots, $2.20. Galvanizing, 30 cents extra. Carload lots to retailers are held at 5 cents advance in all lines, and on less than carload lots a further advance of 10 cents is charged. Steel cut nails are quoted as follows: Carload lots, $2.15, and less than carload lots, $2.20, f. o. b. Pittsburg, plus freight to point of destination. Iron cut nails are $2.25 in carload lots and $2.30 in less than carload lots. Terms, 60 days, less 2 percent off in 10 days.

MERCHANT STEEL.—At the meeting of the shafting manufacturers held last week quotations were reaffirmed. The manufacturers reported that the tonnage on their books is considerably larger than at this time last year and the condition of the trade was reported highly satisfactory. We quote: Turned cold rolled and ground shafting, 47 off in carload lots and 42 percent off in less than carload lots; tire steel, 2.15c to 2.25c; spring steel, 2.25c to 2.35c; toe calk, 2.30c to 2.40c. The following differentials maintain: Less than 2,000 pounds of a size and not less than 1,000 pounds, 10 cents advance; less than 1,000 pounds of a size, 30 cents advance. Tool steel is quoted 7 cents and upwards, according to the grade.

OLD MATERIAL.—There has been considerable buying of heavy melting stock and cast scrap during the week for forward delivery, the former at $21 to $21.25, and the latter at $19 to $19.25, gross ton, Pittsburg. We make the following quotations, gross tons: Heavy melting stock, $21.50 to $21.75; low phosphorus melting stock, $25 to $25.50; steel rails, $21 to $21.25; re-rolling rails, $22.50 to $23; No. 1 cast scrap, $19 to $19.25; borings, $11 to $11.50; busheling scrap, $17.50 to $18.50; old iron rails, $24.50 to $25; turnings, $15 to $15.50.

COKE.—For the week ending Saturday, April 4, the production of the upper Connellsville region amounted to 248,500 tons, while the output of the lower region was 50,900 tons, making the total tonnage of the week about equal to that of the week previous. Furnace coke for future delivery is held at $3.75 to $4, while foundry coke is quoted at $5 to $5.50.

H. A. Jackson, formerly with the Mahoning Valley Iron Co., and lately in the sales and purchasing departments of the Republic Iron & Steel Co., has been appointed manager of the Pittsburg office of A. M. Crane & Co., Inc., 530 Frick Building.

CHICAGO.

OFFICE OF *The Iron Trade Review*,
519 MONADNOCK BLOCK, April 14.

The pig iron market shows no change from the quietness into which it fell two weeks ago by the announcement of lower prices. Buyers are still holding off, and the market is in an unsettled condition, reports being current that iron for the last half is being offered at less than official quotations. In finished lines, demand is without diminution. Orders have been closed in the past week for about 11,000 tons of cast iron pipe, with inquiry for a like tonnage. In wrought iron and steel pipe, mills are sold far ahead and several independent producers have withdrawn from the market. Sheets are firm, with brisk buying; while the demand for plates is limited only by the capacity of mills to meet it. Orders have been placed with Eastern mills for about 10,000 tons of rails, standard sections predominating. Bar iron is quiet, though in contrast to this, steel is quite active. Large consumers are coming into the market for their yearly requirements, and with the announcement that no reduction from present prices will be made it is expected that a steady buying movement will shortly set in. Contracts for merchant steel are being placed by the agricultural trade, though the tonnage is not yet of large proportions. Coke is easier and prices have been reduced.

PIG IRON.—As one seller put it, there is "nothing doing." Such a condition of quietness as has prevailed in this market for the past two weeks has probably not been seen for several years. Even the demand for spot iron, which rarely fails the seller, shows signs of disappearing. Some sales have been made, but nothing over 200 tons in single lots. Carload orders have been the rule, but the total tonnage of all sales would be of very modest proportions. Aside from the unsettled condition produced by the change in Southern prices, foundrymen are concerned over the labor outlook, and until a settlement has been made with the molders for the coming year, it is not expected that much buying will be done. The absolute scarcity of orders has resulted in a weaker market, and reports are current of iron offered for the last half at $17 to $17.25 for No. 2 at Birmingham. We quote as follows, the minimum price being for deliveries in the last half:

Lake Superior Charcoal	$25 00 to 26 00
Local Coke Foundry No. 1	23 00 to 23 50
Local Coke Foundry No. 2	22 50 to 23 00
Local Coke Foundry No. 3	23 00 to 22 50
Local Scotch Foundry No. 1	23 50 to 24 50
Southern Coke No. 1	22 25
Southern Coke No. 2	21 65
Southern Coke No. 3	21 25
Southern Coke No. 4	20 85
Southern No. 1 soft	22 25
Southern No. 2 soft	21 85
Southern Gray Forge	19 85 to 20 25
Southern Silveries (4% to 5% silicon)	23 85
Southern Silveries (5% to 6% silicon)	24 25
Jackson Co. Silveries (6% to 8% silicon)	29 30 to 30 30
Ohio Strong Softeners	24 00 to 24 50
Alabama and Georgia Car Wheel	28 25 to 29 25
Malleable Bessemer	22 00 to 23 00
Standard Bessemer	22 50 to 23 50
Basic Iron	22 25 to 22 85

BARS.—The demand for steel bars continues heavier than that for iron, and contracts have been placed during the week for several round lots of the former. There is a good inquiry from the implement trade which is asking quotations on yearly requirements, and now that steel makers have reaffirmed the present prices for the coming year, it is expected that orders will be placed more freely than in the past few weeks, though as many consumers have still three months to run on last year's contracts, a decided buying movement is not looked for. Consumers of bar iron have been governed largely by individual considerations in placing contracts, and sales of this product are influenced from week to week by these facts. At the present time the market is quiet. We quote mill shipments, Chicago delivery, as follows: Bessemer steel, 1.76½c; angles, less than 3x3, 1.86½c base; hoops in lots of 250 tons and greater, 2.06½c; less than this amount, 2.16½c; iron, 1.80c to 1.90c. Prices from store are as follows: Steel, 2c to 2.10c; iron, 2.15c to 2.20c; hoops, 2.40c to 2.50c; angles, 2.25c rates.

SHEETS.—There has been a good demand during the week under review for all gauges, both black and galvanized. Prices are firm and without change. We quote mill shipments, carload lots, Chicago delivery: Black sheets, No. 27, 2.86½c to 2.91½c; No. 28, 2.96½c to 3.01½c. Galvanized, 75 and 5 per cent. On lots from store, we quote, No. 27 black, 2.95c to 3c; No. 28, 3.05c to 3.10c. Galvanized 75 and 2½ per cent.

STRUCTURAL STEEL.—A few small sales are reported, but generally speaking, the market is quiet. The Lewis institute of this city is taking figures on an addition to its buildings, and it

is reported that several hundred tons of shapes for it will be bought from local jobbers, owing to the inability of mills to give the necessary delivery. We quote mill prices, Chicago delivery: Beams and channels, 16 inches and under, 1.75c to 2c; 18 inches and over, 1.85c to 2.10c; universal plates 1.90c to 2.10c; angles, 3x3 and larger, 1.75c to 2c; tees, 3x3 and larger, 1.80c to 1.90c; zees, 1.75c to 1.95c. The maximum quotations are asked by some mills and dealers on lots for quick shipment. Lots from store, 2¼c to 2½c per pound.

PLATES.—The demand is brisk, and the withdrawal of the principal producers has deflected a large tonnage to jobbers. We quote mill prices, Chicago delivery: Tank steel, ¼-inch and heavier, 1.90c to 2c; flange steel, 2c to 2.10c. The official base price of 1.75c remains unchanged, though material cannot be bought at this quotation in this market. Prices for lots from stock: Tank steel, ¼-inch and heavier, 2.15c to 2.25c; 3-16, 2.25c to 2.35c; No. 8, 2.30c to 2.40c; No. 10, 2.35c to 2.45c; flange steel, 2.40c to 2.50c.

RAILS AND TRACK SUPPLIES.—Eastern mills have booked orders in the past week for about 10,000 tons of standard sections for late delivery. A large producer which has been offering rails for this year's delivery in this market reports that its capacity is now all taken and that it will withdraw from the market. We quote standard sections, 500 tons and over, $28; less than 500 tons to carload lots, $30; less than carload lots, $32; light rails, 45 pounds, $34 to $35; 12 pounds, $39 to $40, with regular differentials for intermediate sizes. Track supplies, mill shipments: Angle bars, 2c to 2.10c; spikes, first quality, 2.25c (out of store, carload lots, 2.35c to 2.45c rates); second quality, 2.10c; track bolts, 3½x¾, with square nuts, 2.85c to 3c per 100 pounds; with hexagon nuts, 3.05c to 3.15c, with usual differentials for other sizes.

MERCHANT STEEL.—Some good sized contracts have been placed during the week by the implement trade for their coming season's requirements, and sales with others are pending. We quote mill shipments, Chicago delivery, as follows: Spring steel, 2.65c to 2.75c; sleigh shoe, 1.95c flat sizes; concave and convex, 2c; out of store, 2.15c; cutter shoe, 2.50c to 2.60c; machinery steel, 2.15c to 2.25c base; plow steel, 2.50c and upwards, according to quality; toe calk, 2.30c to 2.40c; out of stock, 3c to 3.10c; ordinary tool steel, 6c to 7c; specials, 13c and upwards; less than carload lots, 5 to 10 per cent higher; cold rolled shafting, carload lots, 47 per cent off; less than carload lots, 42 per cent off.

MERCHANT PIPE.—Manufacturers report that the sales of the past week compare favorably with the tonnage sold in any week this year. We quote prices on carload lots, mill shipments, random lengths, f. o. b. Chicago, as follows:

	Steel Pipe.		Guaranteed Wrought Iron Pipe.	
	Black. Percent.	Galv. Percent.	Black. Percent.	Galv. Percent.
¼ to ⅜ in inclusive	66.35	56.35	63.35	53.35
½ inch	68.35	58.35	65.35	55.35
7 to 12 inches, inclusive	67.35	57.35	64.35	54.35

Less than carload lots, 12½ percent advance over above prices.

BOILER TUBES.—The business of the week with both mills and jobbers has been of a satisfactory volume. Prices are firm and without change. We quote below prices on carload lots, mill shipments, f. o. b. Chicago. On less than carload lots from mill, 12½ per cent is to be added:

	L. W. Steel Percent.	C. C. Iron Percent.
1 to 1¼ in	43.35	38.35
1¼ to 3½ in	55.35	35.35
2¼ to 5 in	50.35	45.35
6 to 13 in	55.35	35.35

For lots direct from warehouse stock:

	L. W. Steel Percent.	C. C. Iron Percent.
1 to 1¼ in	40	35
1¼ to 2½ in	50	32½
2¼ to 5 in	57½	42½
6 to 13 in	50	32½

CAST IRON PIPE.—The leading interest reports contracts from St. Louis aggregating 11,000 tons, and has inquiries for 5,000 tons from Minneapolis and for 18,000 feet of 36-inch pipe from Kansas City. Business from other sources is of good volume. We quote f. o. b. Chicago, 4-inch water pipe, $34; 6-inch, $33; 8-inch and upwards, $32; gas pipe, $1 a ton higher.

BILLETS AND WIRE RODS.—No sales are reported of either products, all manufacturers of Bessemer billets and wire rods having withdrawn from the market. German basic Bessemer billets are quoted at $29.50 seaboard in lots of 2,000 tons and greater. We quote wire rods, $40; open hearth billets for use in rolling mills, $33; for forging purposes, $36.

WIRE AND WIRE NAILS.—Little change is to be observed from the conditions that have prevailed for several weeks. Manufacturers are barely holding their own with deliveries, the demand for all products being phenomenal. We quote prices to jobbers, Chicago delivery, as follows: Wire nails, carload lots, $2.20; less than carload lots, $2.30. Cut nails, steel, carload lots, $2.26½; less than carload lots, $2.36½. Plain wire, $2.10 carloads, and $2.20 in smaller lots; galvanized, carloads, $2.40; smaller lots, $2.50. Barbed wire, carloads, $2.50; less than carloads, $2.60; galvanized, carloads, $2.80; less than carloads, $2.90. Staples, carloads, $2.30; smaller lots, $2.40; galvanized, carloads, $2.60; smaller lots, $2.70. Bale ties, 85 per cent discount f. o. b. Waukegan on straight carload lots. Poultry netting, 85 and 5 per cent discount from list f. o. b. Joliet or DeKalb, with actual freight allowed not exceeding 50 cents per 100 pounds.

COKE.—Increased arrivals of coke from both the Connellsville and Virginia regions have decreased the cost of both grades in this market. We quote $7.75 to $8 for either, spot track Chicago.

OLD MATERIAL.—No change has been made in quotations as was expected, the market weakening slightly in the past week. There is a good demand with a plentiful supply of material offered. We quote gross tons as follows:

Old iron rails	$23 50 to 24 00
Old steel rails (mixed lengths)	18 00 to 18 50
Old steel rails (long lengths)	21 50 to 22 00
Relaying rails	31 50 to 32 00
Old wheels	23 00 to 23 50
Heavy melting steel	17 00 to 17 50
Mixed country steel	15 00 to 15 50

The following are selling prices per net ton:

No. 1 R. R. wrought	$19 50 to 20 00
No. 2 R. R. wrought	18 00 to 18 50
Shafting	19 00 to 19 50
Dealers' forge No. 1	16 50 to 17 00
No. 1 busheling and wrought pipe	14 00 to 14 50
No. 1 cast	17 00 to 17 50
Railway malleable	15 50 to 16 00
Country malleable	15 00 to 15 50
Iron axles	23 50 to 24 00
Steel axles	19 50 to 20 00
Cast borings	10 00 to 10 50
Mixed borings, etc	9 50 to 10 00
Wrought turnings	13 50 to 14 00
Machine shop turnings	13 50 to 14 00
Iron axle turnings	14 00 to 14 50
Steel axle turnings	13 50 to 14 00
Stove plate and light cast scrap	13 00 to 13 50
Old iron splice bars	21 00 to 21 50

The Field-Evans Iron Co., of Cincinnati and Chicago, has been organized to succeed to the interests formerly represented by Robert Field, Cincinnati; David Evans, Chicago, and the Field-Croxton Iron Co., Cincinnati. The new company will have the exclusive sales agency for the product of the Sloss-Sheffield Steel & Iron Co., Birmingham, Ala.; Williamson Iron Co., Birmingham, and the LaFollette Coal, Iron & Railway Co., LaFollette, Tenn. The general offices will be located at Cincinnati, and will be in charge of Mr. Field, vice president and general manager of the company. Mr. Evans, who is president, will locate in Chicago. Branch offices have been opened in Cleveland, in charge of William Wieman, and in St. Louis, where Mr. E. C. Smith is manager. An office will also shortly be opened in Detroit, and later in the year in New York and Boston. Mr. Irvin McDowell will be manager of sales in Chicago. The company has coke accounts in the Connellsville and West Virginia districts, and with the broader field and more liberal policy secured from its furnace connections, is enabled to more efficiently care for its patrons' interests. All the members and employes of the firm are young men well known in the pig iron business. The company has been organized on the co-operative basis and it anticipates a successful future.

CLEVELAND.

OFFICE OF *The Iron Trade Review*,
1064 ROSE BUILDING, April 15.

The steamer Maruba, of the Pittsburg Steamship Co.'s fleet, arrived at Conneaut from Escanaba Saturday, April 11, with the first cargo of ore delivered at a Lake Erie port this season. Two vessels of the same company arrived to-day from the head of the lakes and nearly twenty of the fleet have sailed

from Lake Erie ports to the north, but the strike of the firemen and the unwillingness of vesselmen to begin operations before a satisfactory agreement as to freight rates has been made have prevented greater activity. There is still very little discussion about freight rates. There has been a disposition to wait for the Pittsburg Steamship Co. to name the rates which it will pay, but this company will be able to carry all the ore which the steel corporation expects to ship this month and it will therefore not be necessary to go on the market for tonnage. Last year in April, 1,854,902 tons was shipped from Lake Superior ports. Present indications are that this season's record up to May 1 will fall far behind that of last year. Ore is now moving freely from the docks. Sales are very slow, especially for Bessemers.

PIG IRON.—The dullness which has prevailed since the Southern association furnaces reduced their prices continues, there being no interest shown by buyers for the last half. There is a strong feeling among Northern furnacemen that the recent reduction was ill advised. While it is true that the market was quiet, some sales were being made, inquiries were coming in freely, and there was a good prospect that business would soon be brisk. Now, however, almost nothing is being done for the last half. The only sign of life is in the demand for spot iron, which has been rather strong for a few days. Sales of Virginia iron have been made at $23.35 Cleveland for No. 2 foundry for immediate delivery, but sales of Northern foundry have been made at somewhat lower figures. Lake Superior charcoal is in good demand and we quote one sale at $26.00 Cleveland. We quote as follows, f. o. b. Cleveland, for shipments in the second quarter of 1903:

Bessemer	$21 85 to 22 35
No. 1 Strong Foundry	22 50 to 23 00
No. 2 Strong Foundry	22 00 to 22 50
No. 3 Foundry	21 25 to 21 75
Scotch No. 1	22 75 to 23 00
Scotch No. 2	22 25 to 22 50
Gray Forge, Valley	20 00 to 20 25
Lake Superior charcoal	24 00 to 25 00

COKE.—Shipments have improved very much within a week or two and prices are a shade easier, spot selling at $6 and coke for the last half at $5.50. The attitude of buyers for the last half is much like that toward pig iron and very few sales are being made.

FINISHED MATERIAL.—There is considerable hesitation about beginning building operations in this city and vicinity, which is attributed to uncertainty as to labor costs, to the money situation and in part to the feeling that prices of many materials are too high. Hence the demand for structural material is not as strong as it was last year at this time. Agreement quotations on structural material are as follows: Beams and channels, 3 to 15 inches, 1.70c; 18 to 24 inches, 1.80c; tees, 1.75c; zees, 1.70c; angles from 3 to 6 inches, 1.70c; universal plates, 1.70c. The agricultural interests have received a great deal of attention from sales agents during the past week. It is apparent that farmers have been buying their machinery at rather low prices and the implement and machinery manufacturers are making a determined effort to obtain concessions before placing their contracts for steel. As the base price of steel, which has long been 1.60c for Bessemer, and 1.70c for open hearth, Pittsburg, has been firmly maintained, buyers have been working for reductions of extras, but apparently without success. While few contracts have been made, the price remains firm. Little is being done in bar iron, the usual quotation being 1.80c Youngstown, while rumors of lower prices are still afloat. The sheet situation shows no change. The announced prices of the principal producer for sales through jobbers are as follows: Galvanized sheets, mill sales, carload lots, Nos. 10 and 11, 2.60c; Nos. 12-14, 2.70c; Nos. 18 to 21, 3c; Nos. 22 to 24, 3.20c; Nos. 25 and 26, 3.55c; No. 27, 3.80c; No. 28, 4.05c; No. 29, 4.45c; No. 30, 4.95c. Galvanized sheets out of stock are quoted 75 and 5 off. For 3-16-inch black sheets and heavier we quote 2.15c Cleveland. Mill sales of black sheets to consumers are made on the following basis: No. 24, 2.65c to 2.75c; No. 26, 2.75c to 2.85c; No. 27, 2.85c to 2.95c. The following are prices out of stock: No. 10, 2.35c to 2.50c; No. 12, 2.45c to 2.60c; No. 14, 2.50c to 2.60c; No. 16, 2.60c to 2.70c; Nos. 18-20, 2.75c to 2.85c; Nos. 22-24, 2.85c to 2.95c; Nos. 25-26, 2.95c to 3.05c; No. 27, 3.05c to 3.15c; No. 28, 3.15c to 3.25c. Orders for rails have been coming in freely from both steam and electric companies and the principal producer has sold its tonnage up to November 1.

OLD MATERIAL.—Prices continue surprisingly firm. The demand is still coming largely from dealers buying to meet the demands of their contracts. The railroads are selling very little scrap, the usual explanation being that their cars and motive power are so busy that the companies do not care to use them to haul their own scrap to market. Heavy steel is very scarce. We quote f. o. b. Cleveland, gross tons:

Old iron rails	$26 00 to 27 00
Old steel rails (over 6 feet)	29 00 to 30 00
Old steel rails (6 feet and under)	20 50 to 21 00
Old car wheels	24 50 to 25 00
No. 1 R. R. wrought scrap	22 00 to 22 50
Mill scrap	19 00 to 19 50
No. 1 machine cast scrap	21 00 to 21 50
Iron axles	29 00 to 30 00
Steel axles	28 00 to 29 00
Axle turnings	18 00 to 19 00
Wrought turnings (free from cast)	16 00 to 17 00
Cast borings	11 00 to 11 50
Uncut wrought iron boilers	13 00 to 13 00
Steel boiler plates	18 00 to 19 00
Grate bars	13 00 to 14 00
Pipes and flues (clean)	17 50 to 18 50
Tank iron	17 00 to 18 00
Hoop and band iron	13 50 to 14 50
Sheet iron	12 00 to 13 00
Wrought drillings	15 50 to 16 50
Malleable iron (railroad)	20 00 to 20 50
Malleable iron (agricultural)	17 50 to 18 00
Stove Plate	16 00 to 17 00
Heavy steel	21 00 to 21 50

CINCINNATI.

April 14.

The coke situation is easier this week and the market rather quiet. For 72-hour foundry coke, contracts for extended deliveries can be placed at $5 f. o. b. ovens and for quick shipment $5.50 is obtainable. This is accounted for by an improvement in transportation. The anthracite movement has not yet commenced, and with the opening of navigation more motive power and equipment is available temporarily in the coke fields.

PIG IRON.—Whatever may be said as to the wisdom of the action taken by the Southern Furnace Association at the close of March, the announcement of lower prices has put a stop to buying, at least temporarily. There are fewer orders and a smaller general business this week than for any corresponding week in the recent past. Buyers have more faith in lower prices, apparently, than prior to April 1. Deliveries upon old contracts have been fairly good for some time now, and foundrymen are comfortable as to supplies for the present. This with the iron still due on contracts has left but little in the way of spot or quick shipment iron for sellers to work on. The association furnaces are believed to be maintaining prices but some independent furnaces are urging their offerings and it is strongly hinted that less than $17 Birmingham for No. 2 foundry has been done. Buyers are in some cases demanding the Eastern differential prices, urging that it is unfair to discriminate against them because they happen to be located in this territory. The Valley furnaces are still taking a good share of the business in the Northern and Eastern part of the state and it is stated that Southern irons are now driven from this territory except as for minor use in mixtures. Charcoal irons are in good demand and firm. Southern Ohio furnaces are said to be maintaining $21 f. o. b. furnace for No. 2 foundry. We quote for any delivery f. o. b. Cincinnati:

Southern Foundry No. 1	$20 75 to 21 25
Southern Foundry No. 2	20 25 to 20 75
Southern Foundry No. 3	19 75 to 20 25
Southern Foundry No. 4	19 25 to 19 75
Southern Foundry No. 1, soft	20 75 to 21 25
Southern Foundry No. 2, soft	20 25 to 20 75
Gray Forge	19 25 to 19 50
Northern Foundry No. 1	23 15 to 23 65
Northern Foundry No. 2	22 15 to 22 65
Southern car wheel iron	27 75 to 28 75

FINISHED MATERIAL.—Market continues in good condition. Deliveries are readily obtainable and there is some competition for desirable orders but prices are well sustained as a rule. The demand is good and shows an increase rather than otherwise. Sheets and plates are especially active. There is also a good inquiry for structural steel. Quotations for galvanized sheets are still made only upon application, but 75 and 5 off is about the market on desirable orders. We quote black sheets No. 27 at 2.78c in car lots of 500 bundles. Black sheets out of store are selling as follows: No. 28, 3.10c; No. 27, 3.20c; No.

16, 2.65c; No. 14, 2.55c; No. 12, 2.45c; No. 10, 2.35c. Tank plates are firm and sell out of store at 2.15c for ¼-inch and 2.25c for 3-16-inch. Beams and channels are quoted at 2.15c to 2.25c from stock, and angles at 2.15c to 2.25c for base sizes. The merchant pipe market remains steady and unchanged. Business was of about the usual volume and there is nothing new to report as to conditions in this direction. We quote:

MERCHANT PIPE.
(Basing Discounts.)

	Steel Pipe.		Guaranteed Wrought Iron Pipe.	
	Black. Percent.	Galv. Percent	Black. Percent.	Galv. Percent.
⅛, ¼, ⅜-inch	66.7	56.7	63.7	53.7
½-inch	68.7	58.7	65.7	55.7
¾ to 6-inch, inclusive	73.7	63.7	70.7	60.7
7 to 12-inch, inclusive	67.7	57.7	64.7	54.7

BOILER TUBES.

	Steel Percent.	Iron Percent.
1 to 1½-inch	41.2	35.2
1¾ to 2¼-inch	54.2	34.2
2¾ to 5-inch	59.7	44.2
6 to 13-inch	54.2	34.2

OLD MATERIAL.—Prices are unchanged but the market holds firm with a good demand. We quote:

Old No. 1 railroad wrought, net tons	19 25 to 19 75
Cast machine and foundry, net tons	17 00 to 17 50
Old iron rails, gross tons	22 50 to 23 00
Old steel rails, gross tons	21 50 to 22 00
Old short lengths, gross tons	17 50 to 18 00
Old iron axles, net tons	27 00 to 27 50
Old chilled car wheels, gross tons	22 00 to 22 50
Stove plate, net tons	11 50 to 12 00
Wrought turnings, net tons	15 50 to 15 75
Cast borings, net tons	12 00 to 12 50

The Jefferson Iron Co., of Jefferson, Tex., is now operating its charcoal furnace in good shape. D. B. Meacham, of Cincinnati, has just returned from a visit to the furnace and is much pleased with the way it is working. It is making a charcoal iron 0.25 in phosphorus. L. S. Colyar, president of the Rhone Furnace Co. and Eagle Iron Co., is also president of the Jefferson Iron Co.

ST. LOUIS.

April 15.

PIG IRON.—Buyers are still holding off. Sales are mostly restricted to small lots of from 50 to 100 tons and inquiries are more in the nature of feelers. With no great pressure to buy and no great pressure to sell, and with iron on a basis of $17.50 Birmingham for No. 2 all interests are awaiting the buying movement with confidence. The Niedringhaus interests (National Enameling & Stamping Co.) recently made a large contract for basic, the entire output of a Tennessee furnace for the second half. This furnace has been making foundry iron but will change to basic on May 1. A sale is also recorded of 9,000 tons of Tennessee basic to another local company for delivery during the third quarter. A sale of the preceding week was 15,000 tons by the Tennessee Coal, Iron & Railroad Co. to the Niedringhaus interests. Coke is now an easy commodity and users in this district have a supply equal to their needs. We can report actual sales at $8 East St. Louis for the better grades. We quote pig iron as follows: No. 1 foundry and soft, $21.75 to $22.25; No. 2 foundry and soft, $21.25 to $21.75; No. 3 foundry and soft, $20.75 to $21.25; gray forge, $19.75 to $20.25; basic, $21.50 to $22.00; Southern car wheel, $28.00 to $29.00.

FINISHED MATERIAL.—No large orders have been placed for bars in the week. The combination price of 1.82c still prevails and on smaller orders $1.00 to $2.00 more a ton is asked. All the trade reports a good volume of business. In structural material there have been no large contracts placed but work on local buildings is being pushed and specifications on old contracts are coming in fast. Plans are pending for the construction of some new office buildings. Deliveries are not agitating agents as much as they were a few weeks ago.

OLD MATERIAL.—Stable prices and a firm market cover the situation. The demand in almost all lines is considerable more than the supply. In consequence the large dealers are pushing the middleman and small collectors and getting all they can out of the urgent needs of those who must have the material at any price. We quote dealers' selling price f. o. b. East St. Louis:

GROSS TONS.

Iron rails	$26 00 to 28 80
Heavy melting steel scrap	20 50 to 21 50
Mixed steel	18 50
Heavy relaying rails	32 00
No. 1 railroad wrought	21 00 to 21 75
Shafting	22 50
Iron axle turnings	16 50
Cast borings	12 00
No. 1 boilers, cut	15 00
Heavy cast scrap	18 00
Stove plate	13 00
Railroad malleable	16 00
Iron axle turnings	16 00
Busheling scrap	17 00

SPELTER.—The supply in the local market is still far behind the demand. The largest sale of the week is one of 100 tons at 5.45c, delivery not specified or guaranteed. Car load lots are quoted at 5.50c, jobbers ask 5¾c.

PHILADELPHIA.

April 14

Business still lags as the result of the action of the Southern association furnaces. Buyers of pig iron are making purchases from hand to mouth. Prices are, however, pretty steady. Imports are heavy and are expected to be still heavier. There is apathy in most branches of the iron and steel business.

PIG IRON.—The market is dull in the extreme. There is no buying except for delivery before July and on these sales prices are somewhat irregular, much depending on the size of the orders. A larger production is expected and with imports increasing it will be difficult to maintain prices. There is so much uncertainty about conditions that increased activity during the coming week is not expected. We quote as follows: No. 1 X foundry, $22 to $23; No. 2 X foundry, $21 to $21.50; No. 2 plain, $20.50 to $21; gray forge, $19 to $20; Middlesboro No. 3, $20.50 to $21; Scotch, $22.50 to $23.50; basic, $19.75 to $20.50.

FINISHED MATERIAL.—With improved railroad facilities and plenty of fuel, the mills are working to their full capacity and the output is immense. Business is large, but production is apparently in the lead. New orders are not coming in as freely as might be desired. Among recent orders to the United States Steel Corporation, the largest came from its constituent companies, 24,000 tons of structural material for new mills having been ordered. The outlook is not as favorable as it was a year ago. We quote as follows: Plates in small lots, 2c to 2.10c; carload lots, ¼-inch and thicker, 1.85c to 1.90c; universals, 1.90c; flange, 2.10c to 2.20c; firebox, 2.25c to 2.30c; marine, 2.30c to 2.35c. Steel bars, 1.80c to 1.90c; prompt shipments from local mills; Western steel, 1.75c to 1.80c; bar iron, 1.93½c to 1.98½c. Structural material in small sizes is quoted 1.73½c to 1.80c; large sizes, 1.90c to 2.10c.

OLD MATERIAL.—Nearly all kinds of scrap are scarce and prices are rather higher in proportion than those of finished products. We quote as follows: Old steel rails, $21 to $22; low phosphorus, $27 to $28; heavy steel, $20.50 to $21.50; old iron rails, $25 to $25.50; steel axles, $26 to $27; iron axles, $30 to $31; car wheels, $24.50 to $25; machinery scrap, $20 to $21; wrought turnings, $16.50 to $17; stove plate, $15 to $16.

BIRMINGHAM, ALA.

April 14

While no great tonnage of pig iron has been booked for shipment at prices ruling under the recently reduced schedule adopted by certain Southern producers, a number of small lots have been taken for the last half, while several blocks of 500 to 1,500 tons have been taken for prompt shipment, principally No. 4 foundry and forge. It is explained by the furnacemen that when they reduced what had been supposed to be the prevailing figures, it was not expected that a general buying movement would set in, as it was generally conceded that the effect of such an announcement would be to cause buyers to hold off, expecting further reductions later and believing that certainly nothing would be lost by waiting for 30 to 60 days. The principal reason for making the reduction was to shut out foreign iron, which was rapidly gaining a foothold in territory which has been considered as belonging to Southern producers. Even at present prices it is difficult to put iron in the Pittsburg territory and compete with the foreign product, as quotations now are made for Middlesboro at $18.50 to $19, Atlantic ports, with a freight rate from seaboard to Pittsburg about half that from Birmingham to Pittsburg. The principal furnaces in the South have suffi-

cient orders booked to take their product to August 1. Beyond that date very little has been sold; but it is argued that as all lines of manufactured products continue in strong demand, there must be a strong buying movement at an early day.

Coke is some lower than the prices heretofore ruling and can now be had for reasonably prompt shipments at $5.50 ovens. Coal is also lower, with much better supply, cars being more plentiful.

The Woodward Iron Co. expects to put in blast in about ten days its stack which has been out for some 40 days for relining and general repairs. As soon as this stack is again in commission, work will begin actively on erection of the new stack. This stack will have a height of 85 feet, with 20 feet clear in the bosh. It will be equipped with four stoves 20x85 feet, 3,500 h. p. of boilers, and four large Allis blowing engines. Ten months is given as the probable length of time to build and blow it in.

Several Northern capitalists have been visiting this section the past ten days, and it is understood one object is the establishment of one or more by-product plants. T. H. Aldrich, of this city, and associates expect to build such a plant at once, and have been granted a franchise by the city of Birmingham for the purpose of furnishing light and heat. They propose to locate their plant some six miles from the city. Cleveland capital is said also to be interested in such a proposition, although the attention of the latter party will be directed largely to the collection and disposition of the by-products. It is understood the by-product plant of the Semet-Solvay Co. at Ensley has come fully up to the expectations of its owners, and as result other such plants are bound to be erected at an early day. It is argued that as such ovens can be charged with 22,000 pounds of coal and produce an excellent quality of furnace coke in 22 hours, they are bound to supplant largely the bee-hive oven, which can only take a charge of 9,000 to 10,000 pounds and requires 48 hours to produce a satisfactory furnace coke.

NEW YORK.

OFFICE OF *The Iron Trade Review*,
ROOM 1909, NO. 150 NASSAU ST., April 14.

PIG IRON.—An unsettled market in pig iron still continues. Actual sales during the week have been few, and in nearly every case for the purpose of meeting immediate requirements. Buyers look on recent reductions as only the beginning. Both Northern and Southern irons can be purchased at least $1 cheaper per ton today than they could a fortnight ago, and asked quotations given below represent the basis of different grades in the open market, and for nearby delivery. Premiums on spot have almost entirely disappeared, in consequence of operations at furnaces being smoother than in some time and because freight conditions are far more satisfactory. In foreign irons dullness has been the rule. Makers have not yet given any evidence of what they will do to meet recent changes in prices here. All the foreign iron coming in is on old contracts, some of which extend to September. Recent buying has been in extremely limited quantities and generally at reduced prices. On the whole the situation here during the week has been characterized by a waiting policy on the part of both producers and consumers. New York prices for immediate delivery are as follows: No. 1 X Northern, $21.50 to $21.75; No. 2 X Northern, $20.25 to $20.75; No. 2 plain Northern, $19.75 to $20.25; No. 1 Southern foundry, $21.50 to $21.75; No. 2 Southern foundry, $20.50 to $20.75; No. 3 Southern foundry, $19.50 to $19.75; No. 4 Southern foundry, $19 to $19.25.

RAILS.—The demand continues brisk, with street car railway systems purchasers on an extremely large scale. Prices for standard sections remain unchanged at $28 at the mill.

BILLETS.—Accurate quotations for German billets are difficult to obtain. For delivery the latter part of June, or the early part of July, Bessemer basic is quoted at from $29 to $29.50, and open-hearth at from $30 to $30.50, in large lots, New York delivery, duty paid, and subject to cable confirmation.

FINISHED IRON AND STEEL.—The market has been quiet during the week in structural material, with contracts representing over 100,000 tons on the verge of being closed by the American Bridge Co. There is no change in the difficulties existing between the company and its men. Sheets are exceptionally firm, with ex-store stocks much sought, and selling as high as $5 a ton above current quotations for carload lots. Many of the mills are refusing to take orders before July delivery at the earliest. The trade looks for an extremely busy summer season. In plates, small shipments are generally satisfactory, and premiums asked for prompt delivery are less than for months. There is a strong feeling that mill prices are destined to prevail ere long, but withal the buying is excellent. Bars are quiet, and business is said to be only fair at best. New York prices are as follows: Beams and channels, 15 inches and under, 1.75c to 1.90c; angles, 3 to 6 inches, 1.75c to 1.90c; zees, 1.75c to 1.90c; bulb angles, 2.05c to 2.35c; deck beams, 2.05c to 2.25c; sheared steel plates, tank, 2.10c to 2.15c; flange, 2.25c to 2.30c; fire box, 2.30c to 2.50c; refined iron bars, 1.95c to 2.10c; soft steel bars, 1.95c to 2.10c; steel sheets, in carloads, New York, No. 28 black, 3.05c to 3.15c; galvanized, 72½ to 75 and 2½ off.

The Metal Market.

NEW YORK.

OFFICE OF *The Iron Trade Review*,
ROOM NO. 1909, 150 NASSAU ST. April 14.

PIG TIN.—The market is a little stronger than when we last wrote, but trade conditions are about the same. Evidence is accumulating that as long as the visible supply continues to increase, and the demand from the country remains slow, buyers will provide only for their urgent wants. Bullish interests seem disposed to realize this, and are permitting the market to take its natural course, for the time being at least. In London during the week the market has improved, with futures commanding a premium once again. Closing quotations at the Metal Exchange today were as follows: Spot to June, 29.65c to 29.80c. London closed today as follows: Spot, £135 7s 6d; futures, £135 10s. Arrivals at Atlantic ports for the month to date, amount to 685 tons, with 5,349 tons afloat.

COPPER.—Dullness was the chief characteristic of the market during the week, with heavy offerings of Lake and Electrolytic, but no purchasers. Wall St. interests manifested little or no interest in the metal during the week, and as a result values reflected trade conditions a little more than usual. The claim having been made that bid and asked prices on the Metal Exchange were too much at variance with those which prevailed in the open market, the board of managers of the Exchange began yesterday to give out prices, with the sole idea of causing less dissatisfaction on this score. The London market during the week has been fairly strong, with trading of the meager variety. Closing prices at the Metal Exchange today were nominally as follows: Lake and electrolytic, 15c to 15¼c; casting, 14½c to 14¾c. London's closings today follow: Spot, £62 11s 3d; futures, £62 15s. Exports for the month to date aggregate 4,801 tons.

LEAD.—Unchanged at 4.67½c for lots of 50 tons or more. St. Louis is 4.57½c. London is £12 2s 6d.

SPELTER.—Market is strong at 5.70c for spot, and 5.60c for April to May. St. Louis is quoted at 5.35c to 5.40c, and London at £22 5s.

ANTIMONY.—In fairly good demand, with Cookson's ruling at 8¼c to 8½c; Hallett's at 7c, and other brands at 6¾c.

QUICKSILVER.—Firm at $47 per flask of 76½ pounds, in lots of 100 flasks. London is £8 12s 6d.

NICKEL.—An exceptionally good demand is noted at 40c to 47c for larger lots down to a ton, and 50c to 60c for smaller quantities.

CHICAGO.

OFFICE OF *The Iron Trade Review*,
519 MONADNOCK BLOCK, April 14.

The metal market has been somewhat erratic in the past week, sagging one day and strengthening the next. Demand has fallen off slightly, particularly for copper, and prices are unsettled. We quote lake copper, carload lots, 14¾c; smaller quantities, 15c. Pig lead, 4.65c in 50-ton lots, and 4.75c in

carload lots. Pig tin, 31½c; spelter, 5¾c, in carload lots, and 6c for lesser quantities; sheet zinc, 6½c to 6¾c for lots over 600 pounds. Antimony, 10¾c to 11c for Cookson's and 9¾c for Hallett's in small quantities. Old metals have been affected by the weakness in new products. We quote: Copper wire, 12c; heavy copper, 11¾c; light copper, 11¼c; heavy rod brass, 11¾c to 12c; heavy yellow brass, 8½c to 9c; light brass, 7c.

THE PRODUCTION OF OPEN-HEARTH STEEL IN 1902.

The American Iron and Steel Association has received from the manufacturers complete statistics of the production of open-hearth steel in the United States in 1902. These are given in the *Bulletin* as below:

The total production of open-hearth steel ingots and castings in the United States in 1902 was 5,687,729 gross tons, against 4,656,309 tons in 1901, an increase of 1,031,420 tons, or over 22 per cent. As compared with 1898, five years ago, when the production of open-hearth steel amounted to 2,230,292 tons, there was an increase in 1902 of 3,457,437 tons, or over 155 percent. The folowing table gives the production of open-hearth steel ingots and castings, by States, since 1899:

States.	1899. Gross tons.	1900. Gross tons.	1901. Gross tons.	1902. Gross tons.
New England	57,124	74,522	170,876	179,923
N. Y. and N. J.	61,461	67,361	82,985	92,763
Pennsylvania	2,393,811	2,699,502	3,594,763	4,375,364
Ohio	117,458	130,191	184,943	278,854
Illinois	246,183	285,551	398,522	435,461
Other States	71,279	141,008	224,220	325,364
Total	2,947,316	3,398,135	4,656,309	5,687,729

The open-hearth steel made in 1902 was produced by 98 works in 16 States—Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland, Tennessee, Alabama, Ohio, Indiana, Illinois, Michigan, Wisconsin, and Missouri. Ninety works in 14 States made open-hearth steel in 1901. The States which have open-hearth furnaces, but which did not produce steel by this process in 1902 were Kentucky and Minnesota. The erection of a large open-hearth steel plant was commenced in Colorado in 1902, but open-hearth steel had not been made down to the close of the year. This State will, however, probably make open-hearth steel during the year 1903. Maryland and Michigan again made open-hearth steel in 1902.

In 1901 3,618,993 tons of open-hearth steel were made by the basic process and 1,037,316 tons were made by the acid process, while in 1902 the production by the basic process amounted to 4,496,533 tons and by the acid process to 1,191,196 tons. In the following table the production by States of both acid and basic steel in 1902 is given.

States—Gross tons.	Basic open-hearth steel.	Acid open-hearth steel.	Total. Gross tons.
New England	110,961	68,962	179,923
New York and New Jersey	54,296	38,467	92,763
Pennsylvania	3,459,702	915,662	4,375,364
Ohio	195,700	83,154	278,854
Illinois	384,951	50,510	435,461
Other States	290,923	34,441	325,364
Total	4,496,533	1,191,196	5,687,729

The increase in the production of acid steel in 1902 as compared with 1901 was 153,880 tons, or almost 15 percent, while the increase in the production of basic steel was 877,540 tons or over 24 per cent.

The total production of open-hearth steel castings in 1902, included above, amounted to 367,879 gross tons, of which 112,404 tons were made by the basic process and 255,475 tons were made by the acid process. In 1901 the production of open-hearth steel castings amounted to 301,622 tons, of which 94,941 tons were made by the basic process and 206,681 tons by the acid process. The following table gives the production of open-hearth steel castings by the acid and basic processes in 1902, by States, in gross tons.

States—Gross tons.	Acid castings.	Basic castings.	Total. Gross tons.
New Eng., N. Y., and N. J.	33,158	3,883	37,041
Pennsylvania	141,385	11,014	152,399
Ohio, Illinois and other States	80,932	97,507	178,439
Total	255,475	112,404	367,879

The Hawley Down Draft Furnace Co., Chicago, has sold the rights for the sale of the Schwartz metal melting and refining furnace for Great Britain and colonies to a British syndicate.

NEW ENGLAND FOUNDRYMEN'S ASSOCIATION.

The April meeting of the New England Foundrymen's Association was held at Hotel Essex, Boston, on Wednesday afternoon and evening, April 8, with an unusually large attendance, Henry A. Carpenter, of Providence, presiding. In his announcement of the meeting Secretary Fred F. Stockwell called the attention of members to the convention of the American Foundrymen's Association at Milwaukee in June, and if enough signify their intention of attending arrangements will be made for a special car and short side trips.

Applications were received from Starkweather & Williams Co., of Providence, R. I., and Henry Souther, of Hartford, Conn. Both firms were elected to membership.

The paper of the afternoon was by O. C. Barrows, of Providence, R. I., who has had large experience in foundry cost keeping. His subject was "Foundry Accounting and Methods of Estimating Costs of Castings." The paper together with reduced copies of the various cards and forms employed by Mr. Barrows appears elsewhere in this issue.

The evening paper was by F. T. Towne, of Stamford, Conn., president of the National Founders' Association. His subject was "The Labor Situation in Our Foundries." The data presented and Mr. Towne's comment were based upon the experience of the National Founders' Association in the handling of labor questions.

The following were present at the meeting:

Mr. Blythe, Walker & Pratt Co., Watertown, Mass.
E. B. Pierce, Wheeler Foundry Co., Worcester, Mass.
A. W. Chase, Kinsley Iron & Machine Co., Canton, Mass.
E. G. Whitney, Kidder Press Co., Dover, N. H.
Wm. Doherty, Doherty Bros., Lowell, Mass.
Charles L. Newcomb, Deane Steam Pump Co., Holyoke, Mass.
L. H. Stannard, E. Stannard & Son, New Haven, Conn.
Theodore M. Lincoln, Hartford Foundry Corp., Hartford, Conn.
William H. Baush, Baush Machine Tool Co., Springfield, Mass.
J. P. Winlock, Barbour-Stockwell Co., Cambridge, Mass.
R. H. Penney, Barbour-Stockwell Co., Cambridge, Mass.
Fred A. Hoyt, Barbour-Stockwell Co., Cambrige, Mass.
William J. Breen, Hugh W. Adams, Boston, Mass.
O. G. Thomas, O. G. Thomas, Taunton, Mass.
Jos. L. Anthony, Weir Stove Co., Taunton, Mass.
R. M. Leach, Weir Stove Co., Taunton, Mass.
F. P. Leonard, Dighton Furnace Co., Taunton, Mass.
C. Everett Evans, Evans Stamping & Plating Co., Taunton, Mass.
D. F. Eagan, H. E. Pridmore, Chicago, Ill.
David J. Gallagher, Vaughn Machine Co., Peabody, Mass.
C. Hitch, Jr., American Tool & Machine Co., Boston, Mass.
A. L. Lovejoy, Becker-Brainard Milling Machine Co., Hyde Park, Mass.
Geo. B. Bucknigham, Arcade Malleable Iron Co., Worcester, Mass.
Geo. C. Belcher, Belcher Malleable Iron Co., Easton, Mass.
John A. Hayes, Hayes Foundry Co., Lynn, Mass.
Thos. F. Goff, Hayes Foundry Co., Lynn, Mass.
Mr. Shields, Shields Foundry Co., Mansfield, Mass.
Rufus K. Jordan, Rufus K. Jordan Iron Foundry, Westbrook, Me.
C. C. Boyden, Matthew Addy & Co., Philadelphia, Pa.
Charles A. Reed, N. S. Bartlett & Co., Boston, Mass.
W. W. Bird, Broadway Foundry Co., Cambridge, Mass.
E. L. Kent, N. S. Bartlett & Co., Boston, Mass.
William J. O'Brien, Becker-Brainard Milling Machine Co., Hyde Park, Mass.
C. S. Norris, Phoenix Iron Works, Hartford, Conn.
J. H. K. Davis, Phoenix Iron Works Corp., Hartford, Conn.
William Harvie, Vaughn Machine Co., Peabody, Mass.
Geo. H. Lincoln, Geo. H. Lincoln & Co., South Boston, Mass.
Walter M. Saunders, Providence, R. I.
Wm. S. White, J. S. White Co., Pawtucket, R. I.
Albert M. Briggs, Franklin Machine Co., Providence, R. I.
E. L. LeBaron, LeBaron Foundry Co., Middleboro, Mass.
B. M. Shaw, Walker & Pratt Mfg. Co., Watertown, Mass.
Geo. A. Reed, Jr., Geo. A. Reed & Son, Gloucester, Mass.
Arthur W. Walker, Walker & Pratt Mfg. Co., Boston, Mass.
Geo. Curry, American Locomotive Co., Providence, R. I.
Jas. E. Hunter, Jas. Hunter Machine Co., North Adams, Mass.
J. F. Blauvelt, New England Butt Co., Providence, R. I.
J. P. Barstow, Builders Iron Foundry, Providence, R. I.
T. H. Colvin, Colvin Foundry Co., Providence, R. I.
Wm. B. North, O. B. North & Co., New Haven, Conn.
O. B. North, O. B. North & Co., New Haven, Conn.
F. T. Towne, Yale & Towne Mfg. Co., Stamford, Conn.
O. C. Barrows, A. Carpenter & Sons Foundry Co., Providence, R. I.
Henry A. Carpenter, A. Carpenter & Sons Foundry Co., Providence, R. I.
R. D. Reed, H. B. Smith Co., Westfield, Mass.
A. J. Miller, Jr., Whitehead Bros. & Co., Providence, R. I
Howard Wilson, Rogers, Brown & Co., Boston, Mass.
Mr. Winchester, Magee Furnace Co., Chelsea, Mass.
Mr. Coffin, Springfield Facing Co., Springfield, Mass.
Mr. Chapin, Builders Iron Foundry Co., Providence, R. I.
Henry Souther, Henry Souther, Hartford, Conn.
Fred F. Stockwell, Barbour-Stockwell Co., Cambridge, Mass
Mr. Williams, Jr., Starkweather & Williams Co., Providence, R. I.
W. L. Ducey, Barbour-Stockwell Co., Cambridge, Mass.
Arthur W. Gibby, Mechanics Iron Foundry Co., Boston, Mass.
H. E. Gibby, Condor Iron Foundry Co., East Boston, Mass.
John Magee, Magee Furnace Co., Boston, Mass.
William H. Bense, Kinsley Iron & Machine Co., Canton, Mass.
C. A. G. Winther, Chapman Valve Mfg. Co., Indian Orchard, Mass.

THE IRON TRADE REVIEW

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APRIL 16, 1903

THE STEEL CORPORATION STATEMENT.

The policy of the management of the United States Steel Corporation in giving to the public increasingly full information regarding its operations is in striking contrast with that of practically all hitherto listed stock companies, which has made the value of their stocks a mystery, and thrown discredit upon the whole class of "industrials." That it has been patent from the beginning that such a policy of secrecy would be disastrous to the stability of its securities should not detract from the credit due the corporation management for the stand it has taken. The natural distrust of a corporation with such an aggregate of properties and such a vast issue of securities must in the exigencies of the case compel as much publicity as has been sought in some quarters to be enforced by law. In the annual report distributed to stockholders this week the following statement of production is made for the calendar year 1902:

Coke manufactured		9,521,567
Coal not made into coke		709,367
Pig iron	7,802,812	
Spiegel	128,265	
Ferro-manganese and silicon	44,453	
		7,975,530
Bessemer ingots	6,759,210	
Open-hearth ingots	2,984,708	
		9,743,918
Rolled and other finished products for sale:		
Steel rails		1,920,786
Blooms, billets, slabs, sheet and tin plate bars		782,637
Plate		649,541
Merchant steel, skelp, shapes, hoops, bands and cotton ties		1,254,560
Tubing and pipe		744,062
Rods		109,330
Wire and wire products		1,122,809
Sheets, black, galvanized and tin plate		783,576
Finished structural work		481,029
Angle and splice bars and joints		139,954
Spikes, bolts, nuts and rivets		42,984
Axles		136,787
Sundry iron and steel products		29,177
Total		8,197,232
Spelter		23,982
Copperas		14,224
Cement (barrels)		486,257

The production of iron ore by Lake Superior ranges, also given in the report, we compare below with our own figures of shipments by ranges. The comparison is not precise, as production is compared with shipments, but is amply accurate for all practical purposes:

PRODUCTION AND SHIPMENTS, LAKE SUPERIOR ORE RANGES, 1902.

	Total.	U. S. Corp.	Corporation percentage.
Marquette	3,853,010	1,487,370	38.6
Menominee	4,627,524	2,675,754	57.8
Vermillion	2,084,263	2,057,537	98.7
Gogebic	3,663,484	2,064,492	44.8
Mesabi	13,342,840	7,778,026	58.3
	27,571,121	16,063,179	58.3

Probably the percentage in the case of the Vermillion range should be 100, as the corporation controls the whole range, and presumably simply had less stock at the end of the year than at the beginning. What is most noteworthy in the comparison is that the corporation took out exactly the same proportion of Mesabi as of old-range ores, when it controls a much larger percentage of the total of old-range than of Mesabi deposits. Other producers are, therefore, exhausting their old-range possessions much more rapidly than is the corporation. With the resources of the old ranges so well exploited, it has been evident for some time that unless Mesabi shipments increase very rapidly the time will shortly come when there will be an uncomfortable dearth of the hard ores and the coarse soft hematites. Clearly this time will not arrive so soon with the corporation as with outsiders. Last year both corporation and outsiders took out practically equal quantities of old-range and of Mesabi ores.

The absence as yet of complete statistics of the country's production of various finished shapes last year prevents a full analysis of the corporation's position in various lines. In the following table we have grouped such statistics as are available, the figures of open-hearth steel production having appeared only within the past few days:

PIG IRON, STEEL AND RAIL PRODUCTION, GROSS TONS, OF UNITED STATES AND OF STEEL CORPORATION, CALENDAR YEARS.

	United States.		U. S. Steel Corp.	
	1901.	1902.	1901.	1902.
Pig iron	15,878,354	17,821,307	6,803,988	7,975,530
Bessemer ingots and castings	8,713,302	9,306,471	6,113,588	6,759,210
Open-hearth ingots and castings	4,656,309	5,687,729	2,746,996	2,984,708
Total Bessemer and open-hearth	13,369,611	14,994,200	8,860,584	9,743,918
Bessemer steel rails	2,870,816	2,876,293*	1,719,076	1,920,786

*Does not include small quantity rails made from purchased Bessemer blooms.

The figures of corporation production in 1901 of course include the three months of the year in which the constituents were being operated as separate companies. From the above table the percentages made by the corporation appear as follows:

PERCENTAGE MADE BY STEEL CORPORATION.

	1901.	1902.
Pig iron	42.9	44.8
Bessemer ingots and castings	70.2	72.6
Open-hearth ingots and castings	59.0	52.4
Total Bessemer and open-hearth	66.3	65.0
Bessemer steel rails	59.9	66.8

We see, what the trade has scarcely looked for, that the corporation has fully kept pace with the increased production of the country at large, and that, too, with the erection of very little additional plant, the increase being due almost exclusively to harder driving and steadier running. By an increase of 17 percent in its own pig iron production the corporation increased its proportion of the

country's total from 42.9 to 44.8 percent. In total steel production it fell behind to a less extent.

In the corporation's decreased contribution to the total open-hearth steel production is the only evidence observable of the new competition, the corporation being unable to show the 24 percent increase in such production which the country at large made. In Bessemer steel, without the building of new plant, it scored a measurable advance.

The production of 782,637 tons of blooms, billets, slabs and sheet bars refers of course only to such products as passed out of the control of corporation subsidiary companies in that form. Shipments from one to another are not included. The amount given represents mainly long time contracts, most of which were made before the corporation was formed. This item will doubtless steadily decrease in the future. In the 1902 figure is included the shipments of wire billets from the Carnegie Steel Co. to the Union Steel Co., now owned by the corporation. Such shipments will not again figure, outside of the fact that the Union company will later be self-supporting, while steel contracts made with other outsiders will gradually expire. The item of 649,541 tons of plates is surprisingly small, but it must be noted that a considerable tonnage of universal and sheared plates is hidden in the 481,029 tons of fabricated structural material. Of the 783,576 tons of sheets and tin plates, probably a trifle over half is sheets. It shows a better control of the trade than would be expected from the number of independent mills in existence and the practical control of this trade appears still more nearly complete when it is remembered that a considerable tonnage of sheet bars went from the corporation to independent mills on time contracts.

THE RECORD OF 1902 IN OPEN-HEARTH STEEL.

Details of the production of acid and basic open-hearth steel in the United States as just ascertained by the American Iron and Steel Association are given in another column. The increase in acid production was nearly 15 percent, of basic over 24 percent, and of both a little over 22 percent. The increase in basic is even larger than has been expected by the trade, although it has been well understood that there would be a large increase, due to some works running full last year which got started only after the previous year was well under way, with others that did not start until last year. The official figures give the production separately for New England, New York and New Jersey, Pennsylvania, Ohio and Illinois, bulking the rest of the country, which shows from 1901 to 1902 an increase from 170,888 tons to 290,923 tons of basic. The great part of this increase comes from Ensley, Ala., with a new producer at Indiana Harbor, Ind. Of the remaining increase the principal gain is due to Clairton starting in August, to better operations at Sharon, and to a number of comparatively small independent producers. As the steel corporation increased its total open-hearth steel production by only 237,712 tons, and as a portion of this was acid steel, at Vandergrift and elsewhere, its contribution to the country's basic steel increase was very small.

We have referred on several occasions to the inability of the scrap supply to keep pace with the rapid increase in basic open-hearth steel production. Until now such a failure was prospective rather than actual, and was predicated upon the conditions and prospects in the trade, and not upon the statistics. Last April we printed a table showing for the years 1897-1901 the production of basic pig and basic open-hearth steel, showing that each succeeding year the percentage of pig iron to steel decreased, and after reviewing the conditions said: "Suddenly, therefore, instead of gradually, the basic open-hearth steel manufacturer must be contented with less scrap, and must pay the full price for what he does use." Since these words were written the price of heavy melting stock has averaged fully as high as basic pig, while poorer grades of scrap have been not much below pig iron. How suddenly the change occurred in 1902 in the proportion of pig to steel is shown by the table which we reproduce, with the 1902 figures added:

	Production of basic iron, tons.	Production of basic open-hearth steel.	Percentage of pig iron to steel.
1897.....	556,291	1,056,043	52.7
1898.....	785,444	1,569,412	50.1
1899.....	985,033	2,080,426	47.4
1900.....	1,072,376	2,545,091	42.1
1901.....	1,448,850	3,618,993	40.0
1902.....	2,038,590	4,496,533	45.2

Thus following an almost steady drop for four years averaging 3.2 percent per year, the proportion of pig to steel suddenly increased 5.2 percent. That this increase will continue there is little doubt. Manufacturers are preparing for it, as all-pig operations are increasing, though more slowly than some in the trade looked for a couple of years or so ago. It is this change which has cut down the proportion of scrap, rather than an increased use of pig at all works. At some smaller plants the change has been mainly from the dearer grades to the poorer grades of scrap. Small works, whose main function is to supply a small finishing mill, can watch operations closely, running slower if necessary, and produce fairly good steel. One works, supplying a small finishing mill, the product of which can be of almost any quality, uses nearly all scrap, cheap scrap at that, and will doubtless continue to do so.

National Association of Manufacturers.

(Special Telegram.)

NEW ORLEANS, April 15.—The convention of the National Association of Manufacturers opened yesterday with a very large attendance. After President Parry finished reading his address [extracts from which appear elsewhere in this issue], John Kirby, of Dayton, O., moved its adoption, saying that the views expressed concerning labor should be heartily indorsed. An animated discussion followed, some delegates supporting the motion and others opposing it. The opponents of adoption, whose views are evidently much less radical than those of Messrs. Parry and Kirby, succeeded in defeating the Kirby motion and the president's report was then referred to the committee on resolutions. Before the reading of President Parry's address, the visitors were welcomed in speeches by James W. Porch, vice president of the association for Louisiana, Mayor Capdeville, of New Orleans, and Governor Heard. President Parry made an appropriate response.

A resolution commending a Wall St. paper for its attacks upon President Parry's labor policy was introduced and some debate followed an attempt to have it adopted without referring to the resolutions committee. The chairman ended the matter by requesting that the resolution go to the committee in the regular order. At today's session the delegates were addressed by Carroll D. Wright, of Washington, and Mayor Samuel M. Jones, of Toledo. Toledo, Pittsburg and Milwaukee are contesting for the next convention.

LAKE SUPERIOR IRON MINES.

Several ore deposits on the Mesabi range have been sold to operating companies the past few days. They are important in that they show a very great change in the character of ore regarded as merchantable in the past two or three years. That there has been such a change every man interested in the business knows, but the extent of the lowering of the old standards is scarcely realized. The Mesabi Chief mine, belonging to a company at Duluth, is the lowest grade to be sold. Its maps show a large amount of ore running perhaps about 40 percent iron and non-Bessemer, with possibly a million tons of good ore scattered around the three forties of the exploration. This good ore is so scattered as to make economical mining a difficult problem, though doubtless it can be solved. For the 25-cent State lease on this land the Great Northern road has paid a bonus of $55,000. It was a good deal of a question in the minds of the ore men of the road whether they should pay the money or let the property lapse, but they had been at no small expense in exploring and figured that they might come out ahead later.

D. E. Woodbridge has taken a lease on the nw ¼ of the nw ¼ of section 15 58-19. One hole near the center is now 50 feet in good ore and there is known to be ore on three sides of the tract. The Shenango Furnace Co. has just taken the forty adjoining to the south, and has ore to the north line, while there is known to be 62 percent Bessemer ore within 100 feet of the west side.

The United States Steel Corporation has been opening the Moore mine, on the Cascade range, and now has a face of ore ready for the steam shovel that is 1,800 feet long and from less up to 25 feet high. There is a stripping of from 3 to 6 or 7 feet over the ore. It will be readily seen that this is an ideal steam shovel proposition for the very cheapest mining. The tonnage, however, cannot be very large in any season for some time.

There are now about 3,000 tons of refined copper on docks at Portage lake, waiting ships. Smelters are making about 325 tons a day, and rail shipments are over 100 tons. The present is the smallest stock on hand at the opening of navigation since the industry acquired large proportions, and is an effectual answer to the stories of tremendous accumulations of copper in the lake region, which one hears from time to time.

The East Biwabik Iron Co., composed largely of grain men of Duluth, is exploring in the south side of section 2 58-16. It has four drills at work with several crews testpitting. Ore has been found in four holes, none of it very thick and all at considerable depth. The exploration looks favorable and a merchantable ore body may be found. This work was commenced by L. and A. Merritt, and sold out by them to T. Merritt and A. C. Hubbell, who in turn sold for $40,000 to the East Biwabik company. Mr. Hubbell is president of the company, John McCarthy is vice president, and Geo. Spencer is secretary and treasurer.

E. F. Sweeney is exploring on land adjoining the old Mesabi Chief property in 24-57-22 and has found some ore at considerable depth, and under a heavy rock capping.

Mesabi Chief has been sold to the Great Northern road, for a cash bonus of $55,000 for the 25-cent lease. The maps show a very mixed proposition, the value of which appears exceedingly problematical, both in the amount of ore of merchantable grade and in the possibility of getting it out economically. The ore is thin and is at every elevation between surface and 150 feet. It is mixed with sand and rock. There is a large tonnage of ore running about 40 percent and non-Bessemer.

W. P. Snyder & Co. have taken the sw of the nw section 15-58-19, on which 6,000,000 tons have been proved, and will open a mine there later. The same company will open the Webb at Hibbing for mining in 1904. They have the St. Clair and it will ship 100,000 tons this year.

The Shenango Furnace Co.'s mine in 22-58-20 will be a shipper late this year, but no great tonnage can be produced till 1904.

The report that the Consolidated Lake Superior Co. has secured the Section 30 property on the Vermillion range, is unfounded.

M. A. Hanna & Co. are expected to buy the State lease on the e ½ of the se ¼ of section 6-57-20, which has been explored by D. C. Rood and associates for some 2,000,000 tons of rather low grade ore. Explorations to prove the original work will be carried forward rapidly. The buyers pay $40,000 and 10 cents additional royalty.

There is a more urgent call than ever for drills and drill operators, and the explorer who is able to get machines at work on land he desires to take up is fortunate. Many are unable to get machines and are thereby compelled to abandon explorations they had agreed to undertake. One drill contracting firm has 108 machines, about one-third of which are diamond drills, at work on the Mesabi range alone, and another is running every machine it is able to get. New drill contracting firms are going into the business, which appears to be quite profitable. The main trouble with new firms is to get men in whom they can have confidence. In this respect the old established firms have almost a monopoly of the business. One drill company is running 13 heavy diamond drills, four for the Section 30 Co., four for the Mahoning Ore & Steel Co., all on the Vermillion range; three for Pickands, Mather & Co., in Michigan; one for the Deering Harvester Co., in the new North Freedom district, Sauk Co., Wis., and one other. These drills represent an investment for stones alone of not less than $70,000. Aside from contract work, a great many individuals are testpitting and drilling with churns, but as it becomes necessary to drill deeper and more thoroughly, the work is passing more and more into the hands of experienced and reliable contracting firms.

The report that the firm of W. P. Snyder & Co. has taken over the Kinney mine at Buhl, Minn., is without foundation.

The Hanging Rock Iron Region.

(Special Correspondence.)

IRONTON, O., April 13.—The labor troubles at Ashland, Ky., originating at the sheet mill, have caused a suspension of all the iron industries of that city, the A. C. & I. men having joined the strike along with the employes of the steel and rod mills. The Belfont and Kelly wire and wire nail mills here will work up all their material this week and a suspension will then be necessary.

The option on the property of the Lawrence Furnace Co., held by S. B. Steece and associates, has been allowed to expire. The price asked was $100,000.

Last week announcement was made by the Republic Iron & Steel Co., that the Eagle plant at Ironton would suspend in all departments until after July 1, on account of lack of orders. Many of the 350 employes have left for other points.

The Means & Russell Iron Co., Ashland, Ky., has sold a portion of its old Bellefonte and Princess furnace properties to the Ashland Iron & Mining Co., for $17,827.

It is semi-officially announced that the proposed railroad and traction bridge across the Ohio River between Ironton, O., and Ashland, Ky., will be constructed without delay and that ground will be broken within ninety days. The C., H. & D. is said to be back of the project with a desire to penetrate the Kentucky and West Virginia coal fields.

No suspensions among the blast furnace interests have been reported this week and the output for the month will be normal.

The pattern room of the Ironton foundry and a portion of the main factory was destroyed by fire last week, but the damage will not retard operations for any length of time. The loss is partly covered by insurance.

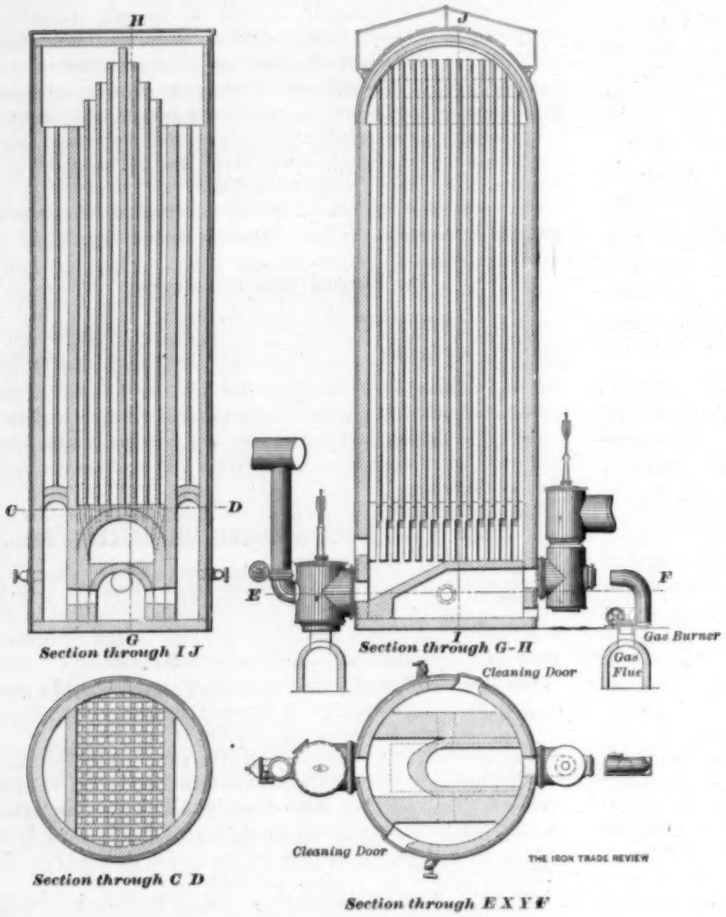
The Hecla furnace of the Hecla Charcoal Iron Co. has temporarily suspended, owing to a shortage in the supply of native ores and charcoal. The furnace is stocking up preparatory to an early resumption.

The Norfolk & Western Railway Co. has decided to establish a foundry at Portsmouth, in connection with its new shops and terminals, which will employ about 1,500 men.

The Singer Mfg. Co., Elizabeth, N. J., which acquired the Muscatong iron ore mines about two months ago, is considering the advisability of establishing a steel plant, but the matter is in the hands of the second vice president, who is at present abroad.

THE KLOMAN STOVE FOR BLAST FURNACES.

In blast furnace practice one of the important items in the cost of producing pig iron is fuel. Any improvement in furnace construction or appliances that will tend to reduce the fuel consumption per ton of pig iron produced, is therefore of moment. The step from the old cast iron pipe hot blast to the fire-brick stove meant a very marked improvement; yet important changes for the better have been made on the fire-brick stove since Thomas Whitwell built his first stoves. Notable among betterments is that recently designed and put into operation at the Saxton Furnace Co.'s plant by A. C. Kloman, general superintendent of that plant. It is shown in detail in the accompanying illustration. This stove is designed closely on scientific principles, and by its use it is possible to obtain 1,800 degrees to 2,000 degrees F. without overheating the combustion chambers. Another important feature of this stove is the long period through which it will maintain its heat, the actual reduction in temperature being only 100 to 120 degrees in one hour, with blast passing through it at a rate of 30,000



THE KLOMAN STOVE FOR BLAST FURNACES.

cubic feet per minute. The stove built on this design and in use at No. 2 furnace of the Saxton plant is 18 feet in diameter by 60 feet high.

The features of this stove that produce this high efficiency are: First. The gases are admitted into a preliminary combustion chamber where partial combustion takes place. It does not entirely consume the gases, but heats them to a temperature that insures perfect combustion. When these gases reach the secondary or outside combustion chambers, an additional supply of atmospheric air is admitted. From the outside or secondary combustion chambers the products of combustion pass upward through a series of flues and thence downward through the center of the stove, which is constructed entirely of checker-work, and which becomes highly heated from the combined heat of the two outside combustion chambers. Second. It will be noted by those familiar with the construction of hot blast stoves that the Kloman stove has no "cold side" to it. It is heated equally throughout, not only imparting a very high temperature to the blast, but also insuring a longer life to the stove than the ordinary fire-brick stove, which has a "hot side" and a "cold side," as the latter form of stove causes unequal expansion of the brickwork while being fired with gas.

The importance of a high initial temperature at the tuyeres is well understood by practical furnace managers. Cremer and Bicknell, in their "Chemical and Metallurgical Handbook," referring to the importance of maintaining a high temperature at the tuyeres, say:

"If the temperature at the zone of fusion is not sufficiently high the amount of silica reduced to silicon will be small, and the slag on account of this excess of silica will be too fusible, and in consequence, the iron will not be retained long enough at the high temperature to become thoroughly carburized, the product being an inferior grade of iron. For these reasons the necessity of maintaining the highest possible temperature in a limited space in the region of the tuyeres is evident.

"Several causes may produce this improper distribution of heat in the furnace. The affinity of carbon for oxygen increases with the temperature. At very high temperature the carbon and oxygen unite very rapidly, and consequently the combustion will take place within a contracted area, and the temperature will be at a maximum. But if the initial temperature of the air is lowered, the combustion will be less rapid and will extend over a much larger area. Consequently the temperature at the zone of combustion and fusion will decrease, while higher up in the furnace the temperature will increase, resulting in bad working of the furnace, as already shown. The condition of the blast admitted at the tuyeres is one of the principal factors affecting the temperature of the zone of fusion; first, by the initial temperature of the blast furnace itself, etc."

Other eminent authorities, such as Turner, Ebelman, Shinz, Grüner and others, but more exhaustively Sir I. Lowthian Bell, have written volumes upon the importance of this matter; but none who write on the subject place more emphasis upon having a reliable stove that can be depended upon to give the required temperature of blast when wanted, than the practical furnaceman.

Personal.

President J. C. Maben, of the Sloss-Sheffield Steel & Iron Co., has sailed for Europe, and in the next few months the management of the company will be in the hands of Vice President J. W. McQueen.

A. J. Strong has resigned his position as head of the tool designing department in the National Cash Register Co., Dayton, O., to accept a position as traveling salesman with the Patterson Tool & Supply Co., of that city.

S. R. Callaway, president of the American Locomotive Co., has sailed for Europe.

G. H. Duggan, of Montreal, has been appointed general manager of the Dominion Iron & Steel Co., of Sydney, Cape Breton.

W. E. Corey, president of the Carnegie Steel Co.; A. C. Dinkey, manager of the Homestead works of that company, and Thomas Morrison, superintendent of the Edgar Thomson works, inspected the Sharon plant at Sharon, Pa., last week with a view to deciding upon the improvements to be made in the near future.

The H. C. Cook Machine Co., Ansonia, Conn., recently incorporated, is the business formerly carried on by H. C. Cook and which Mr. Cook now owns, with the exception of two shares, made necessary to incorporate his business. The line of work is light machinery (special), dies, punches, models and general repair work.

FERRO-PHOSPHORUS FOR BASIC OPEN-HEARTH STEEL.

Reference was made in *The Iron Trade Review* of Dec. 26, 1901, to experiments at the Sharon Steel Co.'s open-hearth works at Sharon, Pa., in the addition of ferro-phosphorus to basic open-hearth steel. Since that time ferro-phosphorus and phosphor-manganese have been in use regularly at these works, entering into thousands of tons of steel furnished in the form of sheet bars to the Sharon Tin Plate Co., the Pope Tin Plate Co., of Steubenville, O., and other sheet steel and tin plate companies. The phosphor metal has been added to the ladle in the manner in which ferro-silicon and ferro-manganese are added, in the manufacture of steel. Patents covering the process, also the alloy used and the method of making it, have just been granted to John Stevenson, Jr., formerly vice president and general manager of the Sharon Steel Co. From the patent on the process of rephosphorizing steel we take the following description as given by the inventor:

"In the manufacture of tin plate and sheets from basic open-hearth steel much trouble is encountered in the process of opening or splitting the black sheets from the doubled and rolled packs, due to the sticking of the sheets one to another. This does not take place with Bessemer steel, a steel containing a higher percentage of phosphorus than basic steel, as in the process of manufacturing basic steel this element is largely removed. It has been found that no element so influences or tends to nullify the sticking of the sheets as the presence of phosphorus. Hence it has necessitated in the manufacture of basic tin plate or sheets the finding of some means of restoring or adding phosphorus to the steel to overcome this difficulty. This has been done hitherto by adding to the steel as it issues from the open-hearth furnace a phosphoritic material, the most suitable of which until recently has proven to be a phosphatic limestone or apatite. The use of this material has not proven satisfactory for several reasons.

"First. The small percentage of phosphorus contained therein, materials of this sort not containing over 14 to 15 percent phosphorus.

"Second. The phosphorus is present as phosphoric acid or in the oxidized condition and in combination with lime, in which condition it does not readily unite with steel, as phosphorus is found only in the steel in the condition of a phosphide. This requires that the phosphoric acid be reduced or deprived of its oxygen before entering the steel, and since the steel when tapped from the furnace is oxygenated or full of occluded gases the reduction of the phosphorus is not apt to take place to any considerable extent, giving rise to irregular product and the loss of a large percentage of the available phosphorus.

"Third. This reduction of the phosphorus can only take place through the combination of the accompanying oxygen with some other element, and this is usually at the expense of the manganese or the carbon that is added at the time of tapping to remanganize and recarburize, again resulting in the irregular product.

"Fourth. In order that the largest possible surface of the apatite may be exposed to the molten steel for taking up the phosphorus to any extent, it is necessary to finely pulverize the apatite, with the result that a great deal of it is lost by being driven out of the ladle by the commotion caused by the incoming steel, likewise causing irregularity in the product.

"Fifth. In order that any phosphorus taken up by the steel may not again be removed by contact with the slag that drains from the furnace upon the metal in the ladle, causing much ebullition, it is necessary to work the heat in the furnace with as silicious a slag as possible, as a calcareous slag has a great affinity for phosphorus. This results in a high sulphur steel. Sulphur has no affinity for a silicious slag, and unless the slag is calcareous enough to remove phosphorus it will not act radically upon the sulphur. Thus the conditions favoring the two reactions desired are directly opposed to one another.

"Sixth. Since the amount of phosphorus taken up by the steel from the apatite is small and as a large percentage of the apatite is lost, as before stated, on account of its pulverulent condition, it becomes necessary in order to obtain the requisite amount of phosphorus in the steel to use a very large quantity of the apatite, with the result that so much cold material is added to the hot bath of metal as to chill it considerably, and thus cause trouble in the teeming or pouring.

"Seventh. To overcome this last difficulty, it is necessary to tap the steel at a much higher temperature than usual, which superheating destroys the quality of the steel, causing it to become oxygenated and full of occluded gases. This makes the steel red short, so that it cracks in rolling, and, furthermore, the gases cause blow-holes to form during the solidification of the ingot. These blow-holes result in blisters in the finished sheet, so that with the cracks and the blisters the material is unfit for many purposes and the source of much loss.

"The foregoing difficulties have been somewhat overcome by the rephosphorization of the steel by a pig metal high in phosphorus, called 'ferro-phosphorus.' Its use, while it overcomes some of the trouble does not remove all, and in addition it complicates the conditions somewhat. For instance, ferro-manganese is used to recarburize the steel and at the same time by the addition of the manganese induce in the steel the property of rolling without cracking. The ferro-phosphorus is of necessity added at the same time, both being added when the metal is being tapped into the ladle to avoid loss of the elements carbon, manganese, and phosphorus by oxidation. The addition of the ferro-manganese itself has a tendency to chill the bath, which effect is further increased by the addition of the ferro-phosphorus, for in order that the elements carbon, manganese, and phosphorus can enter the steel the amount of heat absorbed must be sufficient to thoroughly liquefy the cold ferro-phosphorus and ferro-manganese. Again, as ferro-phosphorus contains a considerable amount of carbon this is of necessity taken up by the bath, for which allowance must be made in the carbon content of the bath in addition to that introduced by the ferro-manganese. As the loss of available carbon varies according to the condition of the bath, this means the introduction of two variable factors in the final result. I have found that these difficulties in the manufacture of basic steel for tin plate and sheets can be overcome by the use in recarburizing and rephosphorizing of a metallurgical product which may be described as a phosphoric ferro-manganese—an alloy combining in one the uses and properties of both ferro-phosphorus and ferro-manganese. In ferro-phosphor-manganese the elements desired in the steel for the manufacture of tin plate and sheets—viz., phosphorus and carbon and manganese—are concentrated to a high precentage, and the medium by which they are bonded—the inert iron—is reduced in quantity. By its use improved results are obtained for the following reasons:

"First. One addition only is necessarily made to the molten metal, and by reason of the concentration of the elements phosphorus, carbon, and manganese this addition is much less in amount than has previously been called for with the two or more separate additions when ferro-phosphorus and ferro-manganese are used.

"Second. The amount of inert material being thus reduced, the chilling effect on the molten steel is correspondingly diminished, so that the metal can be tapped at a much lower temperature than hitherto—a most desirable gain.

"Third. The recarburizing is much simplified, as the carbon being added in one addition the losses of that metalloid can be more closely observed and the proper provision made in the carbon content of the molten steel.

"Fourth. Being enabled to tap the heat at a lower temperature through the use of this alloy, a greatly-increased uniformity of quality in product is obtained. The loss by oxidation of the elements phosphorus, carbon, and manganese is diminished, as the lower the temperature at which the steel has been produced the less oxygenated its condition. Likewise the irregularity in product due to segregation of the phosphorus, carbon, sulphur, and manganese is lessened, as nothing is more conductive to the liquation of these elements in the steel than a high temperature.

"Fifth. The cost of the process is much reduced, the amount of the alloy required being lessened and the cost of same being lower than either ferro-manganese or ferro-phosphorus."

The Alloy and Method of Making It.

In separate patents Mr. Stevenson covers the alloy—a highly phosphoric ferro-manganese—and the method of its manufac-

ture. The claims are on "a method of producing an alloy of iron with large proportions of phosphorus and manganese." The inventor explains that "large" in the above connection means not less than 6 percent in the case of phosphorus and not less than 15 percent in the case of manganese. The composition of the alloy and the method of manufacture are described as follows:

"It is well known that manganese and phosphorus separately will combine with iron in any or all proportions. Thus ferro-manganese consists of, roughly, 80 percent manganese and 20 percent iron (including impurities) and spiegel 20 percent manganese and 80 percent iron and impurities, and both of these compounds contain phosphorus in very small proportions—for example, less than 1 percent. Ordinary pig-irons contain manganese and phosphorus in relatively small proportions, the upper limits for phosphorus being from 3 to 4 percent and for manganese about 2 percent. Phosphorus and iron will also combine in almost all proportions. For example, a commercial product is known containing 25 percent phosphorus and 75 percent iron (including impurities); but the manganese is about 1 percent only. In any combination of either one of these two elements with iron the other element of the two is either absent or is present only in an insignificant amount. By combining both these elements—phosphorus and manganese—together in relatively large proportions with iron according to my invention I obtain a new product of commercial value. In this product the phosphorus is not less than 6 percent, preferably about 15 to 25 percent, the manganese is not less than 15 percent, preferably about 50 percent to 60 percent, and the iron and impurities about 25 percent.

"In carrying out my process in its preferred form to obtain this combination of elements, as above described, I use an ore containing iron and a high percentage of manganese and smelt the same in a blast furnace of proper construction with coke and a suitable flux. As most manganiferous ores are low in phosphorus, to obtain a relatively high percentage of this element in the product I use as a flux instead of limestone, as is ordinarily utilized, a natural phosphate limestone called 'phosphatic rock' or 'apatite' or other suitable phosphoritic flux which will flux off the impurities in the ore and coke and at the same time transfer the contained phosphorus to the previously reduced or reducing elements—iron and manganese—to form phosphids. This product can also be obtained by resmelting ferro-manganese or spiegel in a cupola with apatite or other suitable phosphoritic flux to flux the coke-ash; but the amount of phosphorus that can be obtained in this way will be smaller on account of the small amount of flux required in a cupola as compared to a blast furnace. The same product can also be produced by resmelting ferro-manganese or spiegel in a cupola or reverberatory furnace with ferro-phosphorus and using as a flux either the phosphoritic limestone or a non-phosphoritic limestone, as generally used in blast furnace practice.

"There are in existence large quantities of highly phosphatic manganese ores containing iron, which are considered unsuited for the production of ferro-manganese and spiegel for the usual uses to which these products have been put. For the production of my phosphoric ferro-manganese these same ores are too low in phosphorus to yield a concentration of the phosphorus to the point desired; but by smelting such ores with apatite or phosphate rock or other suitable phosphoritic flux the high percentage of phosphorus in one will be added to that in the other, resulting in the product described."

The first of three furnaces of the Clairton Steel Co., at Clairton, Pa., will be blown in this week and the remaining two stacks will probably be blown in during July. The furnaces all have an estimated output of 500 tons daily and when in full operation their output will more than meet the requirements of the steel plant. Last week the blooming mill rolled 900 tons during 24 hours, and it is believed that 1,000 tons daily output will shortly be reached.

Fire at St. Ignace furnace, St. Ignace, Mich., April 11, destroyed the stock house and charcoal shed and damaged some of the machinery. Neither the stack nor stoves were damaged. About 30,0000 bushels of charcoal burned. The furnace will be out of blast for some time.

Current Labor Issues.

DEMANDS OF CHICAGO MACHINISTS.

The Chicago Metal Trades Association has called a general meeting of its members for Friday evening, April 17, at the Grand Pacific Hotel, to discuss the demands made by District Lodge No. 8 of the International Association of Machinists, as printed in their circular, a copy of which has been sent to every employe of machinists in Chicago. A banquet will precede the meeting. The association will also listen to the report of the special committee appointed at its last meeting with instructions to prepare a reply to the union's demands and to draft a working platform for the association.

The Chicago Metal Trades Association is the successor to the Chicago Machinery Manufacturers' Association, which was disrupted during the strike of 1901 owing to the withdrawal of several of its members from its ranks who early in the struggle conceded the demands of the union. It is not affiliated with the National Metal Trades Association, or with any other organization, though it works in conjunction with the national body when the occasion arises, being in active sympathy with the purposes and aims of that organization. Daniel Hugenin is the secretary, with offices at 1610 Ashland block. The association's membership comprises employers of about 2,500 operatives engaged as machinists, millwrights, blacksmiths, boilermakers, patternmakers, structural iron workers, buffers and polishers, brass workers, sheet iron workers, electrical workers, helpers to any of the above, handymen and apprentices.

District Lodge No. 8, International Association of Machinists, of which Lee S. Fisher and J. J. Keppler are the business agents, includes 18 local lodges, with a membership of 3,500 to 4,000 machinists. At a general meeting of the members of these lodges in February, it was agreed to demand not later than May 1, a 5 percent increase in wages, the recognition of the union and a nine-hour day. In the letter sent out by the union which is printed herewith, no mention of the second demand is made:

"Inclosed on separate sheet, the members of the International Association of Machinists, by almost a unanimous vote cast in the last week of February, 1903, instructed their representatives to present to the various manufacturers employing machinists or machinists' apprentices, in Chicago and vicinity, that they desire and will endeavor to enforce, if necessary, by all lawful means at their command, to establish those conditions by which they may be employed as therein set forth, believing they are justly entitled to all, under present conditions, for the amount of product placed at the disposal of their employer from their labor.

"We believe, as stated in Article 1, that not more than nine hours should be required for a day's work and not more than 54 hours on night shifts. The half-holiday on Saturday during the summer months has become a custom (especially in large cities) rather than a rule or law, and has been assisted as much by the employers as the employes, and should be granted in addition to the shorter work day.

"Article 2, pertaining to the increase, is based on the general condition of trade, and inasmuch as there has been no collective demand made in this vicinity since May 1, 1901, and not from the fact that we might have the power to enforce it.

"Article, 3, pertaining to overtime, as there has been practically no opposition in the past, there should be no objection to it now.

"Article 4, governing the employment of apprentices, should receive the earnest co-operation of the employers for its rigid enforcement, for the protection of the boy that is trying to elevate himself so that he may be a credit to his employer as well as to his fellow workmen. That he should not be engaged as an apprentice until he is 16 years old and not after he is 21, and should serve four years, and be given an opportunity at all branches of the trade as far as it is possible. That he should be dismissed at the expiration of six months or at the most nine months, if in the judgment of the superintendent and the journeymen machinists' committee men he is not qualified to learn the trade, so that he may secure employment at some other trade or profession where he may be more proficient.

"Article 5 is based on the assumption that every man is en-

titled to an opportunity to earn enough to maintain himself and those that may be dependent upon him, if the co-operation between employer and employe can devise a way to obtain these results.

"We would ask that the conditions contained in statement be complied with on or before May 1, 1903. If a written agreement for one year or more is desired by the manufacturer, we are ready at all times to enter into one, based upon the conditions set forth in statement, with provision for arbitrating any differences that may arise, thereby preventing any strike or lockout until any differences have been thoroughly investigated."

The inclosure is as follows:

We submit herewith a statement of conditions under which the machinists and machinists' apprentices desire to govern their employment, to be enforced on or before May 1, 1903.

1. That nine hours shall be the standard work day. All time worked over nine hours in any one day shall be considered overtime, except on night shifts, that not more than 54 hours shall be worked in the five nights—viz., Monday, Tuesday, Wednesday, Thursday and Friday. (This association has no objection if a further reduction of hours can be secured by mutual agreement between the employer and employes, to establish the half holiday on Saturdays during the summer months.)

2. Wage Scale.—That not later than May 1, 1903, machinists, die and tool makers shall receive a 5 percent increase over and above the rate paid January 1, 1903. And such additional amount to those that would still receive less than 30 cents per hour and 35 cents per hour for die and tool makers, except outside men, who are to receive 50 cents per hour, eight hours to constitute a day's work for all outside work.

3. Overtime.—Time and one-half to be paid for all time to be worked over the regular day schedule up to 12 o'clock midnight. After 12 o'clock, Sundays and legal holidays—viz., New Year's Day, Washington's Birthday, Memorial Day, July 4, Labor Day, Thanksgiving Day, and Christmas Day, to be paid at the rate of double time, except on the company's own repairs of its machinery, so that the factory may be in running order the following day, for which time and one-half is to be paid.

4. Apprentices.—One apprentice may be employed for the shop, irrespective of the number of machinists employed, and one to every five machinists thereafter. This is to apply to day force only, as apprentices are not to be employed on night shifts. If overtime is worked they are to receive time and one-half or double time as applied to journeymen. The minimum rate for apprentices per hour to be:

	Cents.
First six months	8
Six months to one year	10
One year to one year six months	12½
One year six months to two years	15
Two years to two years six months	17½
Two years six months to three years	20
Three years to three years six months	22½
Three years six months to four years	25

After which they are to receive at least the minimum journeymen's scale.

5. That should an occasion present itself whereby it will be necessary for the employer to make a general reduction in their force of employes, on account of national panic or a general depression in the trade, the regular standard work day may be reduced so if possible all may have an opportunity to secure employment, so that he may provide for himself and those that may be dependent upon him for support.

LEE S. FISHER,
J. J. KEPPLER,
Business Agents District Lodge No. 8, International Association of Machinists.

None of the members of the association has acceded to the demands of the union, though several concerns not members are reported to have done so. In all probability the association will offer a counter-proposition, as considerable objection has been raised to several features of the communication sent out by District Lodge No. 8. Practically all the shops in Chicago have adopted the nine-hour day and are paying a minimum wage scale of 28 cents an hour, but it is extremely doubtful if the half-holiday on Saturday in the summer months and the 5 percent increase will be allowed in addition. This is looked upon by many as an effort to get in the thin end of the wedge calling for an eight-hour day, and it will be strongly opposed. Chicago machinery manufacturers have no written agreement with their respective apprentices, and the prospects are that the conditions under which these shall be employed and the scale of wages paid them, as laid down in the union's letter, will be materially modified by the association. Objection has also been raised to Article 5 in the machinists' communication, in which it is demanded that in case of any depression of trade the working hours, rather than the force of employes, shall be reduced in sufficient proportion to allow all the opportunity to labor. The opinion of members of the association is that this will never become operative.

A STRIKE AGAINST THE PREMIUM PLAN.

In the strike at the W. P. Davis Machine Co., Rochester, N. Y., involving 125 machinists and other labor employed in the shop, the machinists demand, among other things, the abolition of the premium plan, which has been in use by the company for over two years. The machinists' committee had a conference with Mr. Davis and a committee of machinery manufacturers of Rochester and the manufacturers offered to the machinists to submit the matter in dispute to arbitration. This offer was rejected by the union, which replied that the only thing it would arbitrate was whether or not the company should employ only union men, but the other demands would be granted or there would be a strike.

The objection they raised to the premium plan was that men working under the plan largely increase their output, as well as their pay, a condition which they say is not favorable to organized labor. In other words, the strike seems to be a socialistic attempt on the part of the Machinists' Union to bring all its members to the dead level of pay with the minimum of work, and prohibiting the members of that union from doing as much work as they can and getting as much pay for it as they can.

The machinists' committee admitted that the men in the Davis shops were very well satisfied; that they showed very little interest in the union meetings and did not attend the meetings and that they had no complaints to make; but that the machinists outside of the Davis shop practically made the demand and voted for it in the lodge. The strike shows that the majority of the Davis men have been practically intimidated into a strike against their own interests and against their own wishes.

The interests of the W. P. Davis Machine Co. are being looked after in this matter by the National Metal Trades Association and a local association of manufacturers. Many members of the association have had strikes within the last few years and have succeeded in resisting just such demands as this. Many in the National Metal Trades Association have established the premium system and men are making as high as $5 and $6 a day in those shops under the plan. The result of the operation of the premium plan in the shops of the National Metal Trades Association has been most satisfactory. The association has never yet been defeated by the Machinists' Union and has never discharged a man at the request of the union or any other outsider.

Strike breakers working for the association are never deserted but are taken care of. The association is building up a body of good workmen of good character, who hold the association's certificate and who are sent to break unjust strikes wherever they occur in the association shops. These men are kept in steady employment by the association and are never out of a job whether there is a strike on or not, the result being that the members of the association have an amount of protection that it would be difficult for an ordinary manufacturer to secure; and the men working for the association have the guarantee of an organization with a very large defense fund, a thorough organization and a spirit of loyalty to each other and to the men who work for them, which has never been disputed.

THE UNION BOYCOTT OF NON-UNION MEN.

Joseph S. Mundy, builder of engines and hoisting machinery at Newark, N. J., has offered to meet his employes half way by conceding their demands for a nine-hour day and their schedule of extra pay for overtime. They asked for these concessions, to take effect May 1. He is ready to grant them June 1. On the question of employing only members of the

International Association of Machinists, Mr. Mundy declared that he will never consent to sign such an agreement. He called his men before him, and told them frankly his decision. The union, in its contract, which it presented to Mr. Mundy, called for the discharge of all the non-union men. He said:

"I will enter into no agreement with any organization which prevents honest labor from securing employment or which takes the bread and butter out of their mouths. If every man has not the right to work without being forced to obey the mandates of an organization, then it is time for us to get out of business. The very audacity of the proposition astounded me, and in my estimation it is anarchy."

In conclusion, Mr. Mundy said if the men struck, he would never take one of them back. The non-union employes applauded Mr. Mundy's remarks and signified their willingness to accept his proposition. The members of the Machinists' union have not said what course they will pursue.

BUCHANAN'S PLANS EOR THE STRUCTURAL STRIKE.

The New York World gives some interesting inside history concerning the recent visit to the metropolis of Frank Buchanan, president of the International Association of Structural Iron Workers of America, who, it says, went to order the most gigantic strike in the building trades that the city had ever seen, but failed in his efforts. The World adds: "When he came to New York, Mr. Buchanan saw visions of making a great name for himself as a labor leader, but he failed in his efforts to order a general strike, according to prominent labor leaders in the city, because there was no justification for it. Mr. Buchanan wanted the entire underground tunnel tied up because the American Bridge Co., which is connected with the United States Steel Corporation and which supplies the steel for the construction of buildings throughout the United States, has declined to recognize the officers of the International Union in the settling of strikes, preferring to meet the local unions in each of the cities instead, and deal with them directly. Many of the labor leaders in this city, especially the members of the Board of Building Trades, say that Mr. Buchanan should have consented to such an arrangement and not have forced an issue on a simple question of recognition in which wages and the question of hours were not involved. It was for this reason that Mr. Buchanan received very little sympathy from outside labor organizations, who declined to enter into a sympathetic strike, because, had they done so, it would have thrown thousands of men out of employment and would have caused great injury to employers who had made plans to make this the busiest building season of any time in many years."

LABOR NOTES.

The employes of the Ashland Steel Co., Ashland, Ky., have refused to make steel for the Ashland Sheet Mill Co. on account of the employment of nonunion men by the latter company. Conferences between the company and employes have been in progress.

The demand of the various trade unions of men employed in and about the iron foundries and machine shops of Vancouver, B. C. for a nine hour day with the same pay as given for a ten hour day has been granted by the employers.

The iron founders at Toronto, Ont., have positively refused to grant the demand of the molders for a ten percent increase in wages. The molders have not yet gone on a strike.

Several months ago the state of Indiana instituted suit against the Republic Iron & Steel Co. to compel it to pay its employes once each week, as required by an act passed by the legislature in 1889. The Supreme Court on April 8th announced a decision holding that the law is in conflict with the bill of rights, and also with the 14th amendment to the Federal Constitution. In passing upon the question the court said in part: "When the state places the wage earners of the state under quasi guardianship it classes them with minors and other persons under legal disability by making their contracts void at the pleasure of a public officer and tends to degrade them as citizens by impeaching their ability to take care of themselves. It is paternalism pure and simple in violent contrast with the liberty and equality theory of our institution."

Chicago blacksmiths and their helpers, to the number of about 8,000, are demanding, independently of each other, an increase in pay and full recognition of their respective unions. The journeymen are asking for a 10 percent increase, and their helpers demand 27½ cents an hour for outside work, and 30 cents an hour for heaters. The increase is to be effective May 1.

An Immense Steel Dry Dock.

A contract to build the largest steel floating dry dock in the world, to float the largest battleships, and one that is to be towed 13,000 miles to the Philippine Islands, has been awarded the Maryland Steel Co., Sparrows Point, Md., by the Navy Department. The dock is to be 500 feet long and of extra strength and weight, weighing 10,000 tons, principally to enable her to stand a voyage half way round the world. The contract price is $1,124,000 and it will be twenty-seven months in building. The builders are to deliver the great structure on the Atlantic Coast and the Navy Department will take up the task of getting the dock to its destination. The dock will have to be towed across the Atlantic, through the Mediterranean Sea, down the Suez canal and Red Sea, across the Indian Ocean, and up the China Sea to Manila. It is to lift from 16,000 to 18,000 tons.

Henry E. Pridmore, of Chicago, has recently published a very handsome catalogue, showing the various styles of stationary and portable molding machines made by him. It is of the regulation size, 9x6 inches, printed on heavy glazed paper, and the contents are tastefully arranged. The front cover shows an illustration reproduced from a clay model of a molding machine, with several kinds of castings made on it, with the operator standing close by—a striking design and a departure from the usual method of illustrating machinery. The catalogue contains an exterior view of the Pridmore plant, with a plan of the city showing the street car and railroad lines leading to it. In addition to illustrations of the various types of machines, there is a comprehensive article on the method of operation, construction and economy resulting from the use of machines made by Mr. Pridmore. The prices, dimensions and code words of each machine are given, together with other useful information for foundrymen.

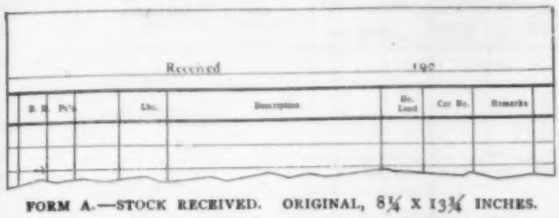
The Engineering Agency, Monadnock block, Chicago, received applications in one day recently for 67 high-grade technical men; one company asking for 25 blast furnace draftsmen at $125 to $150 a month and another company for 30 structural draftsmen at $125 a month. The agency has vacancies on its books for over 200 competent men, including instructors in shop work for technical colleges, teacher for manual training school, assistant editor for technical journal, chemists, engineers, shop superintendents, draftsmen, etc. The president of the agency is F. A. Peckham, for 12 years with the *Engineering News;* the treasurer, A. B. Gilbert, for 11 years with the same paper, and the secretary is A. G. Frost.

A settlement of the strike recently existing in two of the light gray iron foundries of Cleveland has been made. In all the other light shops an understanding was reached with the Iron Molders' Union early in the year. The campaign of the union in the light gray iron foundry industry of Cleveland began more than a year ago, and in that time nearly 1,500 of this class of molders representing five nationalities have been gathered into the union. One of the provisions of the settlement with the Acme Foundry Co. is that 65 non-union men who entered the company's employ since the beginning of the strike be discharged. The other foundry in which the strike was prolonged was that of the Standard Foundry Co.

Foundry Accounting and Methods of Estimating Costs of Castings.*

BY O. C. BARROWS, PROVIDENCE, R. I.

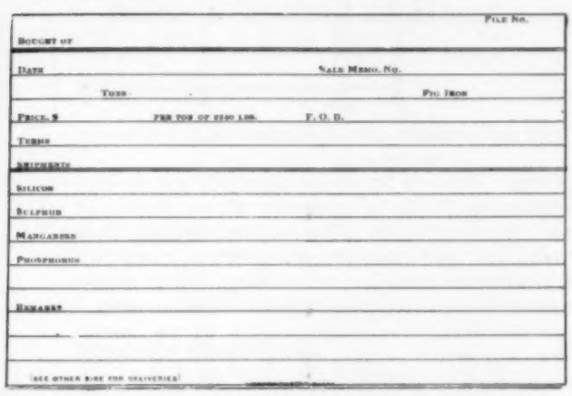
We take it for granted that it is absolutely essential that every one engaged in producing castings, or any manufactured article or product, should be able to estimate correctly the cost of any form or kind of such product and quote a price for same that will enable him to


Received 190

D. R.	P'd	Lbs.	Description	Bo. Load	Car No.	Remarks

FORM A.—STOCK RECEIVED. ORIGINAL, 8¼ X 13¾ INCHES.

secure the work in competition with other producers, and at the same time insure a suitable margin of profit. If you should look into the methods of our great life and fire insurance interests, you would find that their prices and rates are based upon the lessons of experience drawn from years of business, and experience should be the best teacher. We fear, however, that some of our foundries do not have such correct systems in actual practice as will enable them to gather in concise form to be of benefit, the lessons taught them in the past.


FILE NO.

BOUGHT OF

DATE SALE MEMO. NO.

TONS PIG IRON

PRICE, $ PER TON OF 2240 LBS. F. O. B.

TERMS

ARTICLES

SILICON

SULPHUR

MANGANESE

PHOSPHORUS

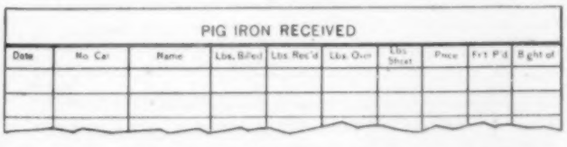
REMARKS

SEE OTHER SIDE FOR DELIVERIES

CARD NO. 1. PIG IRON PURCHASES. ORIGINAL, 4 X 6 INCHES.

New business is offered; some other foundry has made the castings for a certain figure; the foundry is anxious for the work, and the one to whom it is offered is sure that if A has made the work for 3½ cents, he can make it for the same price or shade it a little. He gets the job, only to learn at the end of the year and stock taking time that his balance sheet does not show what he would like to see.

I have in mind an instance within a year or two where after making a line of castings for some little time, the


PIG IRON RECEIVED

Date	No. Car	Name	Lbs. Billed	Lbs. Rec'd	Lbs. Over	Lbs. Short	Price	Frt. P'd	Right of

CARD NO. 2. ORIGINAL, 4 X 6 INCHES. CARD NO. 3 IS IDENTICAL EXCEPT THAT IT RELATES TO COKE.

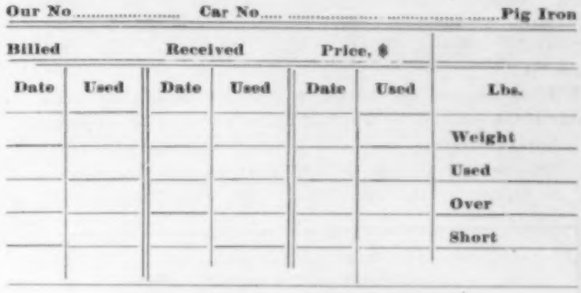
accounts of the customer showed too small a margin of profit; and the price being raised, the customer took the work to other nearby foundries, one of whom (upon the statement made by the party that the castings had been made for a half cent per pound less than was actually the case) took the work at the lower figure named. After a few months the founder discovered that he was losing money on every pound made. Had they been using the system I shall outline, he could have known at once that the castings could not have been made at the price and shown any profit whatever.

We shall confine the methods treated of to a jobbing business in producing castings, without any addition of a machine shop or other work than properly cleaning up and delivering the castings. Yet the principle underlying the methods shown may be properly applied to any business. I have found from experience in several different lines as an accountant that there are no book methods or suggested forms, etc., that will apply to every similar line of business, but each one must adapt them to his own or his employer's ideas.

I suppose some of you have answered a ring of the telephone bell and something like this has followed:

"Hello, who is this?"

"This is the Progressive Foundry Co."


Our No..... Car No..... .....Pig Iron

Billed		Received		Price, $		
Date	Used	Date	Used	Date	Used	Lbs.
						Weight
						Used
						Over
						Short

CARD NO. 4. ORIGINAL, 4 X 6 INCHES.

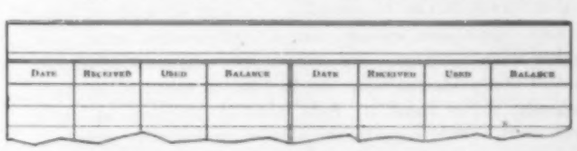
"Well, this is the Automatic Carriage Co. What is the price of castings?"

"Well, that depends. Prices vary according to the kind of work, style of patterns, etc. What class of work do you want?"

"Why, we want just ordinary castings, iron castings, and should think you could give us a price."

"Well, we will call and see the patterns and talk the matter over with you."

Now comes the time when, having seen the patterns, we want to be enabled at once, by some simple method, to estimate correctly the probable cost of making the castings, to obtain the work and be assured the making of a living margin of profit. Our plan will be to place in the hands of the one who is to name the price certain basic prices. He will need to know from a certain pattern five things, viz.: 1, weight of casting; 2, actual cost of


Date	Received	Used	Balance	Date	Received	Used	Balance

CARD NO. 5.—RECEIPTS OF SCRAP IRON, ETC. ORIGINAL, 4 X 6 INCHES.

molding; 3, actual cost of cores, if any; 4, cost per pound of iron; 5, cost per pound of all other foundry expenses of whatever nature, which we will term "general expense." Knowing these, he will, after adding a suitable margin of profit, be enabled to name a price at which he can produce the castings and be reasonably sure of closing the year with a proper balance upon the right side of the ledger.

We do not claim this is anything new and possibly some of you have a better plan, but we offer it as having proved very satisfactory in actual practice for a number of years. In connection with this is the use of a monthly inventory which will show profit or loss practically as correct at the end of each month as yearly when accounts are all balanced and actual inventory taken.

We hear a great deal said of late relative to "card systems," and we shall submit a variety of "card forms" that we have found very helpful in keeping track of the

*Read at the monthly meeting of the New England Foundrymen's Association, Boston, Mass., April 8, 1903.

various items, articles and accounts necessary to one in this line of business. With the regular system of books we have nothing to do in this paper except to say that they should be properly kept in what is known as "double entry" with the accounts properly subdivided as demanded by the business, so that the accounts will show at a glance the purchases and costs of the different articles used. For instance, "Iron," "Sand and Clay," "Fuel," "Supplies," "Teaming," "Expenses," "Interest," "Insurance," "Labor," "Laboratory," etc., as well as the customary plant accounts of Real Estate, Buildings, Fixtures, Machinery, Piping, Tools, Office Equipment, etc. See Form "A."

Number of Pieces Delivered.		Weight Single Piece.	Total Weight.	Cost of Molding Single Piece.	Total Cost of Molding	Cost of Cores Single Piece.	Total Cost of Cores.	

HEADING OF FORM C. ORIGINAL SHEET, 12 X 14½ INCHES.

A book known as "Stock Received" should be kept, upon which should be entered daily all iron or supplies of whatever nature, received in any department. Have the different clerks report tickets of weights, quantities, etc., in detail to the office, and when entered upon this book all invoices can be properly checked up without asking any questions except where differences occur in weights or quantities. Pig iron, coke, coal and sand are some of the principal items to be kept account of in such a manner as to have all facts relative to them at one's finger ends. We suggest the following for this purpose.

_____ 190

	LBS.		COST MOULDING		COST CORES.	
CASTINGS						
PRICE						
COST						
GAIN						
PER CENT						

FORM D. ORIGINAL, 4½ X 4¼ INCHES.

No. 1 is a card for each sale memorandum of pig iron, containing all facts in relation thereto, with name of seller, kind of iron, price, terms, shipments, analysis, deliveries, etc., to be filed in card cabinet under the name of the seller. The opposite side of this card is ruled for record of deliveries, tons, car numbers, etc.

DATE	LBS	IRON AND SAP	COST MOULDING	COST CORES	PRICE PER LB	SELLING PRICE	COST	GAIN	LOSS	PER CENT

COST BOOK FORM E. ORIGINAL LEAF, 8½ X 13½ INCHES.

No. 2 is "Pig Iron Received," upon which we enter soon as advice is received, the date of bill, number of car, kind of iron, pounds billed and file number of party bought of. This is ruled also for pounds received, pounds over, pounds short, price, freight paid, all to be filled in as iron arrives.

No. 3, "Coke Received," is exactly the same as for Pig Iron, No. 2. On these two forms can be readily seen at a glance what iron and coke is in transit, whether received, on dock, when shipped, price, etc., without reference to all the invoices from a dozen or more firms.

No. 4 is also used to keep track of each car of iron received. As each car is entered upon our books it is given a serial number of our own as well as the car number. This card shows billed weight, actual weight received, price, date and amount used in cupola, and when finished should show quantities over or short.

No. 5 is used for scrap iron or any material, showing date received, used and balance on hand, to be entered up daily, weekly or monthly as deemed best.

Now to ascertain the five things necessary to figure the cost of the casting wanted by the customer: 1. Weight of casting. This can be easily estimated, near enough for all practical purposes, by rules well known to you all. 2. Actual cost of molding. This is to be determined in accordance with the best judgment and from experience. 3. Cost of core, in same manner. 4. Cost of iron per pound. The iron account cost should be made up monthly from the daily record kept at the cupola by the person in charge, showing the kinds, number of car and quantities of pig iron, scrap and sprues melted as well as the fuel used. These amounts figured at the cost of the material delivered in the yard, divided by the number of pounds of good castings made for the month, will give the cost per pound of iron for the castings made, although in figuring work on which a price is to be quoted, the market price of pig iron must be taken into consideration and particularly if you were fortunate enough to have bought your supply before an advance. The sprues will be left out in the figures and only taken into account at the annual inventory. 5. Cost per pound of general expense. This we will base upon the total of the year or month just passed, having the exact price per pound in detail made

NAMES	LBS	SELLING PRICE	COST	GAIN	LOSS	PERCENT

COST BOOK FORM F. ORIGINAL LEAF, 8½ X 13½ INCHES.

NAME NO. NO.
ADDRESS
DEPT.
OCCUPATION

Age	Married	Single	Children	Nationality
Date employed				
Left employ				

Cause	Wages per Day		Date	

Record
Accident
Remarks
References (See other side)

CARD NO. 6.—RECORD OF EMPLOYES. ORIGINAL, 4 X 6 INCHES.

up as follows: Labor—Sunday labor, office help, etc., ware room, cleaning up and shipping, foundry help, laborers and salaries. Other expenses—Sand and clay, fuel, supplies of all kinds, teaming, expense, gas and electric lights, power, etc., interest, insurance, laboratory and any other items of expense whatever. The total of these different items will make up the "General Expense Account."

Ending 190 — Hands Employed — Hours Worked — Lbs. Made — " Shipped

	Hands Employed		Day Work	Piece Work	Pay Roll	Pay Roll	Total	Average	Ratio to	%	No 301	
	Day	Piece	Hours	Hours	Day	Piece	Pay Roll	per Hour	Total Labor	Poor Work	Poor Work	
SUNDRIES												
WARE ROOM												
FOUNDRY HELP												
NIGHT MEN												
MEN'S CORE ROOM												
GIRLS' " " Day												
" " " Piece												
FLOOR MOLDERS Day												
" " Piece												
APPRENTICES												
BENCH & SQ MOLDERS Day												
" " " Piece												
MACHINE " Day												
" " Piece												
TOTAL												

CARD NO. 7.—WEEKLY STATEMENT COMPUTED FROM PAY ROLL. ORIGINAL, 5 X 8 INCHES.

In making up the monthly account to show profit or loss we will proceed as follows—a plant which has been found after several years of experience to tally very closely with the actual results of the annual stock taking and balance sheet. When the books have been properly

Monthly Statement 190

Pig Iron Melted lbs.				
Scrap " "				
Stove Plate " "				
Sprues " "				
Total lbs. "				
Mach. Castings made				
Misc. " "				
Total lbs. " "				
Castings shipped G.F.Ex.Co.				
" " all others				
Total lbs. Castings shipped				
Poor Castings returned lbs.				
Per Cent. Poor Castings ret'd				
Ratio Good Castings to Melt				

CARD NO. 8. ORIGINAL, 5 X 8 INCHES.

balanced and proven correct, the ledger balances are drawn off on a sheet, all plant accounts being carried as shown on balance sheet. [Form B is not reproduced.—Ed.] The iron, sand and clay and fuel accounts are to be inventoried as follows:

Iron: viz., Balance Inventory Jan 1.....$
Add invoices received in Jan.....
Less iron melted in cupola in Jan.....

Leaving balance on hand Jan. 31.....$

Deduct this balance from total ledger balance Jan. 31st and the difference is amount to charge to Profit and Loss account for the month.

Sand and Clay we find as follows: Taking the previous year we find total cost of sand and clay, divide this cost by total pounds of good castings made, and the cost per pound shown we use all through the current year to get monthly amount used and inventory.

Balance Inventory Sand on hand Jan 1....$
Add received during January.....

Total .....$....

....pounds good castings made in January at cost last year per pound equals.....$
Making amount used in month.....
Leaving balance inventory Jan. 31.....

The difference between this inventory and inventory or ledger balance Jan. 31 to be charged to Profit and Loss account for month.

Fuel account can be ascertained easily by taking inventory at January 1, add cost of fuel received in month, deduct amount used as per account from cupola record; leaving balance to be carried to new account.

Supplies, expense and sundry other accounts, for purpose of monthly inventory, may be carried each month same value as at January 1, as they will seldom vary but little in value of stock on hand, unless some heavy purchases are made during any one month, when the amount can be easily arranged to spread over several months in making up the monthly account. In closing the monthly inventory, of course account should be taken of wages due help at end of month and unpaid.

On the first day of the month an inventory must be taken as closely as possible of the pounds and value of

Month of 190

	Sundries	Ware Room	Foundry Help	Night Men	Men's Core Room	Girls' Core Room	Floor & Bench Molders	Machine Molders	Total
Cost Mfg. Castings per lb.									
" Mach. " "									
Total Cost " "									
Cost Gross Misc. Cast'gs "									
" " Mach. "									
Ratio Labor to Cost Misc.									
" " " Mach.									
" " Total Cost									
" " Net Pro. to Pro.									

	Pounds	Cost		Pounds	Value
Misc. Castings Made			Misc. Shipped		
Mach. "			Mach. "		
Total "			Total "		
Total lbs. Melted			Misc. Returned		
			Mach. "		
			Total "		

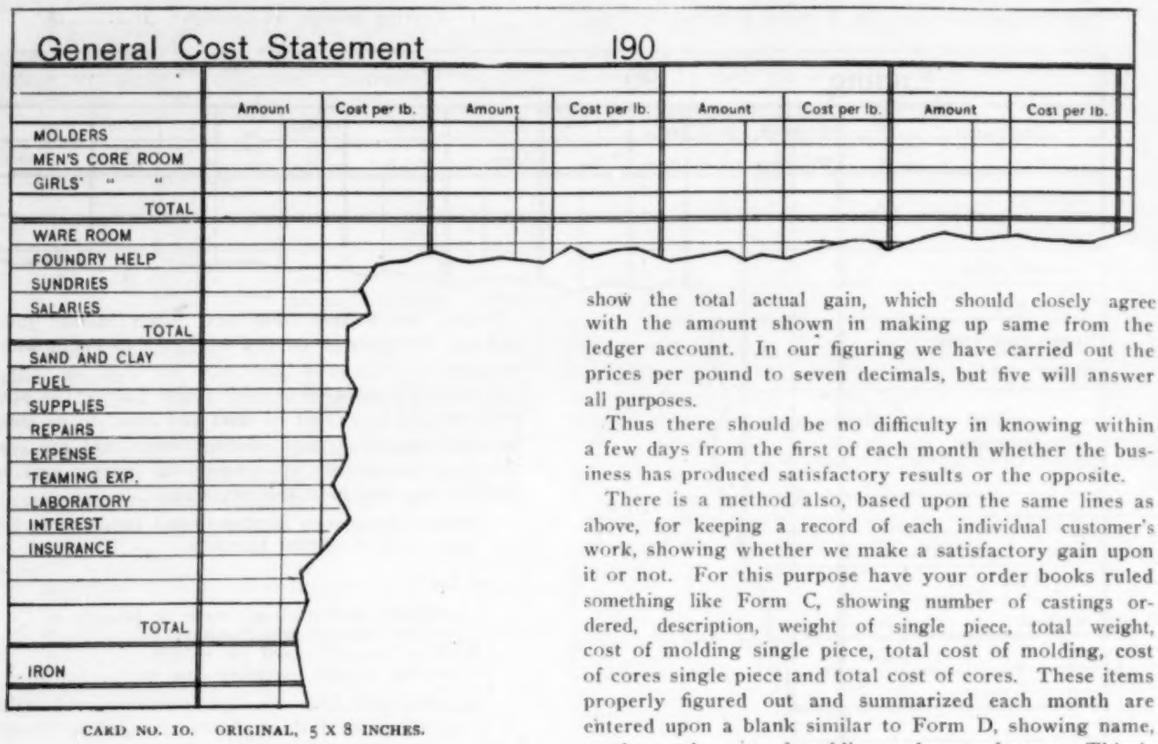
CARD NO. 9.—COST OF VARIOUS ITEMS PER POUND OF CASTINGS.

castings on hand, this being the only item in which it is necessary to take an actual account for this purpose. To ascertain the pounds of castings made:

Take pounds on hand Jan 1.....
Take pounds on hand Feb. 1.....

Showing a difference of ..... either made for stock or taken out of stock.

Taking actual number of pounds of castings shipped during the month, add or subtract the difference in stock on hand and the result will be the number of pounds made. Divide the value received for pounds shipped by the pounds shipped and you will have the average price per pound received.



General Cost Statement 190

	Amount	Cost per lb.	Amount	Cost per lb.	Amount	Cost per lb.	Amount	Cost per lb.
MOLDERS								
MEN'S CORE ROOM								
GIRLS' " "								
TOTAL								
WARE ROOM								
FOUNDRY HELP								
SUNDRIES								
SALARIES								
TOTAL								
SAND AND CLAY								
FUEL								
SUPPLIES								
REPAIRS								
EXPENSE								
TEAMING EXP.								
LABORATORY								
INTEREST								
INSURANCE								
TOTAL								
IRON								

CARD NO. 10. ORIGINAL, 5 X 8 INCHES.

Divide the cost of iron melted in cupola by number of pounds castings made and you have the cost per pound for iron used. Now divide the cost for each item of expense, labor, sand, fuel, etc., by the number of pounds of castings made and you have the cost per pound of each item. Adding all these items together we obtain the cost per pound for "General Expense."

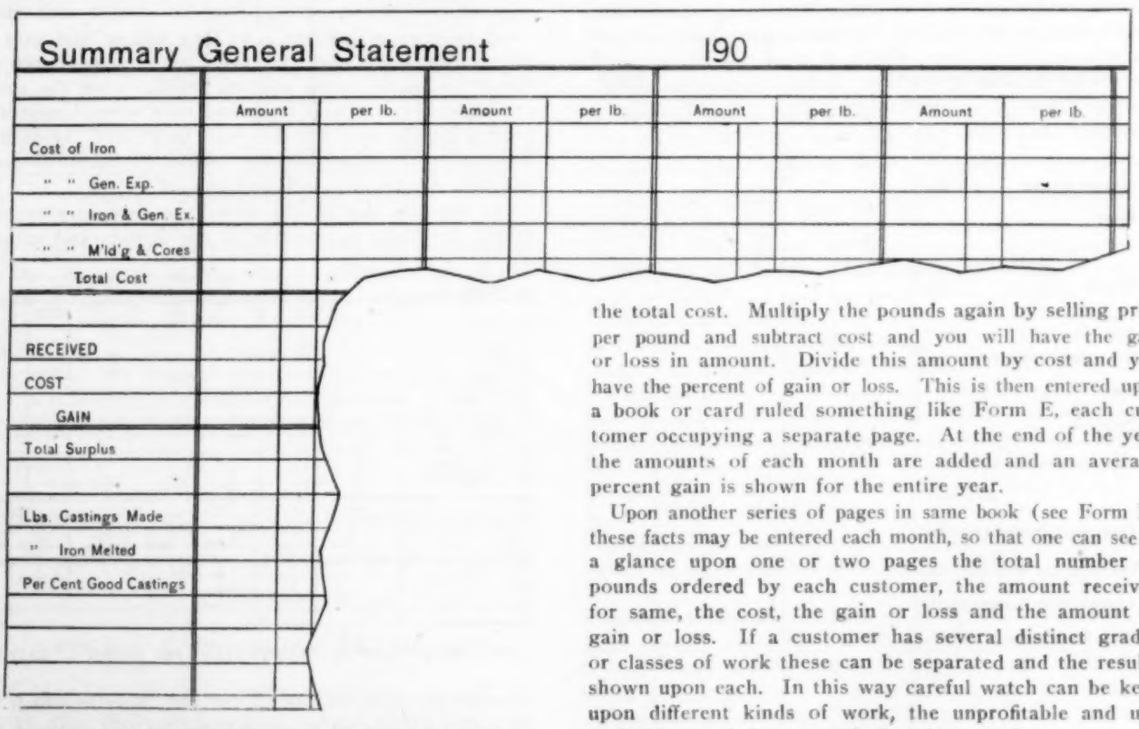
Now taking the cost per pound of iron....$
Add cost per pound of General Expense....

We have total cost of iron and General Expense.
Add cost of molding and cores.....$
We have total cost per pound for castings made.
Summarized: Received per pound.....$
Cost per pound.....
Gain per pound.....

Multiplying the pounds made by the gain per pound will show the total actual gain, which should closely agree with the amount shown in making up same from the ledger account. In our figuring we have carried out the prices per pound to seven decimals, but five will answer all purposes.

Thus there should be no difficulty in knowing within a few days from the first of each month whether the business has produced satisfactory results or the opposite.

There is a method also, based upon the same lines as above, for keeping a record of each individual customer's work, showing whether we make a satisfactory gain upon it or not. For this purpose have your order books ruled something like Form C, showing number of castings ordered, description, weight of single piece, total weight, cost of molding single piece, total cost of molding, cost of cores single piece and total cost of cores. These items properly figured out and summarized each month are entered upon a blank similar to Form D, showing name, total pounds, cost of molding and cost of cores. This is handed into the office by the clerk in charge of order books at the end of each month. These sheets are then figured as follows: Multiply pounds by cost of iron and general expense, as shown by previous record for month or year, add cost of molding and cores and you then have the total cost. Multiply the pounds again by selling price per pound and subtract cost and you will have the gain or loss in amount. Divide this amount by cost and you have the percent of gain or loss. This is then entered upon a book or card ruled something like Form E, each customer occupying a separate page. At the end of the year the amounts of each month are added and an average percent gain is shown for the entire year.



Summary General Statement 190

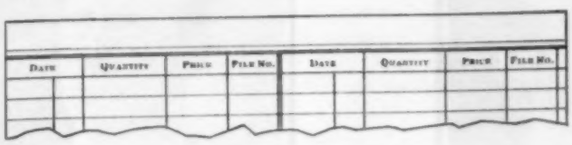
	Amount	per lb.	Amount	per lb.	Amount	per lb.	Amount	per lb.
Cost of Iron								
" " Gen. Exp.								
" " Iron & Gen. Ex.								
" " M'ld'g & Cores								
Total Cost								
RECEIVED								
COST								
GAIN								
Total Surplus								
Lbs. Castings Made								
" Iron Melted								
Per Cent Good Castings								

REVERSE SIDE OF CARD NO. 10. ORIGINAL, 5 X 8 INCHES.

Upon another series of pages in same book (see Form F) these facts may be entered each month, so that one can see at a glance upon one or two pages the total number of pounds ordered by each customer, the amount received for same, the cost, the gain or loss and the amount of gain or loss. If a customer has several distinct grades or classes of work these can be separated and the results shown upon each. In this way careful watch can be kept upon different kinds of work, the unprofitable and undesirable weeded out, methods taken to cheapen cost of others, and a check upon the method of estimating is constantly kept, by comparison with actual results as inventories are carefully taken and accounts closed. We do not claim this system as outlined to be infallible or applicable, in its present form, to all jobbing foundries.

but where the work done is of an average class: for instances, on all light work, all medium work or all heavy work, the foregoing may, with slight changes, be made to apply in any such shop. Should a foundry do all classes of work, then it would be necessary with this system to keep a separate record of the classes. You will note that we do this, as shown on Card 8, subdividing our product into two classes, machine castings and calling all others miscellaneous castings.

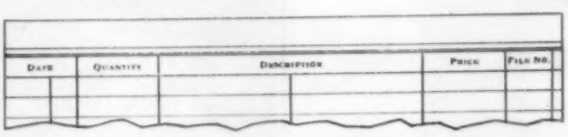
If in figuring heavy work you should add the same general expense per pound as is necessary in figuring light or medium work it might result in losing the job, for a foundry running 20 molders on heavy work would melt, say, 20 tons per day, while a foundry doing light work and employing 20 molders might melt only 3 tons per day; naturally general expense per pound would be much more on the light work than the heavy. However, as said before, this can be easily overcome by classification and a little more detail.



CARD NO. 11.—RECORD OF SUPPLIES. ORIGINAL, 4 X 6 INCHES.

We make use of other card forms as accessories in showing results and tabulating information, which while not necessities may be found very useful. Card No. 6 is used to keep a record of every employe, but more especially of molders and skilled help, showing all facts necessary, and filed alphabetically in two lists, one of help at work and the other of all who have previously worked in the shop. A file should also be kept of such applicants for work as may seem desirable, with their references, etc. Such a record of help is often found very handy when accidents occur and facts are needed at once about the man, his residence, age, etc.

Card No. 7 is a weekly statement compiled from the pay-roll, showing subdivision of all help, average earned per hour, ratio of each room or department to total labor and percent of poor work. This can also be used for a monthly or yearly showing of the same facts. In this way a constant watch and comparison may be kept by the employer upon the ratio of any one department as compared with total wages paid.



CARD NO. 12.—RECORD OF SUPPLIES. ORIGINAL, 4 X 6 INCHES.

Should the cost of cleaning and shipping a certain number of pounds of castings be 10 percent of total pay-roll one week, and the following week prove to be 12½ percent, the attention would at once be called to the difference and an examination instituted as to the cause of same, and if more help has been required to do the same work, a remedy applied.

Card No. 8 is a monthly statement showing pounds of pig iron, scrap, sprues, etc., melted, pounds of castings made, shipped, poor castings returned, both in pounds and percentage and ratio of good castings to iron melted. On this one card may be shown the record for an entire year.

Card No. 9 is arranged to show at a glance the cost per pound of castings made for each room or department, the ratio of labor of nonproducers to producers, cost per pound for cores made and some other items of interest. Two months are shown upon one card.

Card No. 10 has upon one side a general cost statement to be made out each month, showing in detail the amount in dollars and cents and also the cost per pound for castings made of each room or department of labor, as well as all items of sand, fuel, supplies, etc., in such subdivision of same as one may decide best for their own particular use. Upon the reverse is a summary or recapitulation of the business, showing the results of the business in dollars and cents, cost, average selling price, gain per pound, etc. This card contains four months business and will furnish condensed information that cannot fail to be of interest to every business man or officer of corporation.

Another use of the card system which should be found very useful in this or any other line of business is with the use of cards similar to No. 11 and 12. These are used to keep a record by name of Articles, of all supplies, tools, etc., purchased. As invoices are received an entry is made upon the proper card, for instance: Riddles will be the heading of one card upon which will appear date of purchase, quantity, description of kind, price and file number of party from whom purchased. Another card is for nails, another for brushes, one for gas bills, electric lights, stationery, etc. Thus at any time one can refer instantly to the proper article asked for and note date of last purchase, price paid, whom from, etc., while at the end of the year the total purchases of such articles are shown at a glance with whatever variations in prices have occurred. At stock taking time one has prices ready at hand for any article needed, as every purchase is here recorded.

Perhaps I should say in passing that we use the vertical system of letter filing, with a file number for every customer with card index of same, so that there is but one place for the letters or invoices of any one party, which is under the file number first given them when entered upon the books. Such number is used upon all cards indicating the one purchased from. The printed forms of cards for such use as above may be varied to suit one's particular ideas or business. We also use the card system again for prices of castings and quotations made. Same is very elastic, can be enlarged to any size, old and discarded customer's cards taken out and the file kept always fresh and easily referred to.

I notice some criticisms in recent publications as to the expense of keeping up elaborate cost systems; and some of you will ask how much labor is required to keep such a system as I have outlined. This will, of course, depend somewhat upon the extent of the business, number of hands employed, etc. I would simply say that in a jobbing foundry melting 25 to 30 tons per day and employing 150 to 200 hands, one clerk a part of the time, in addition to the regular force employed, should be easily able to keep the work well in hand.

I would ask in closing and leave for your consideration the thought whether if some such basis of estimating and keeping cost in neighboring foundries were in vogue in all, there might not be better results, prices better regulated, less friction between customer and seller, and in every case the foundryman would feel that he was meeting fair competition and that his success would demand the best facilities, best apparatus, best help, modern appliances and close attention to details, while the figures kept and shown as indicated would prove and confirm from week to week the results of his efforts.

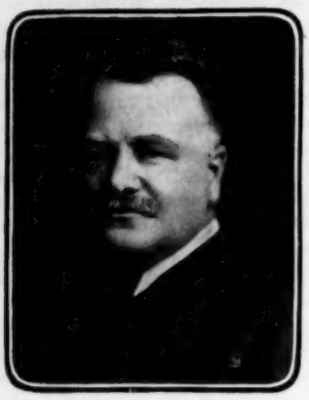
It is reported that La Societe Cockerill, of Seraing, Belgium, is building two large gas engines, on the Delamare-Deboutteville system, of 600 and 1,200 horsepower respectively, for the Societe Ougree-Marihaye, of Ougree, to utilize the waste gases of the blast furnaces. The 1,200-horsepower engine is of the tandem double-acting type, and is intended for electric lighting purposes. The 600-horsepower engine is a single-cylinder one, and will be used as a blowing engine.

The officers of the Krupp plants at Essen, Germany, have introduced an eight hour day because they say there is not sufficient work to keep the men longer employed. The wages of the employes have been reduced 20 percent.

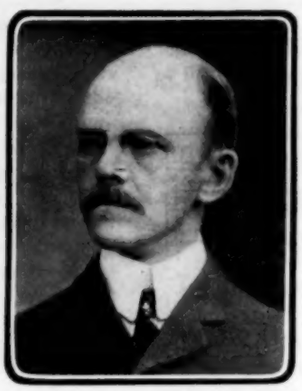
New Officers of the N. M. T. A.

We have pleasure in presenting portraits of the officers of the National Metal Trades Association elected at the convention at Buffalo on April 2, together with some facts relating to their business careers.

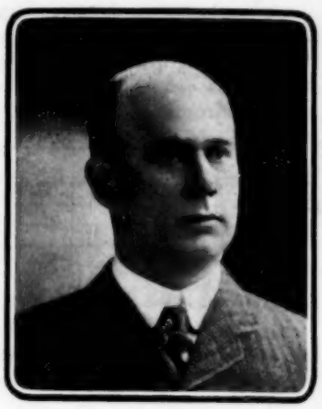
The president, S. W. Watkins, president of the Christensen Engineering Co., Milwaukee, Wis., has been one of the most active members of the association from the beginning. In 1901 he was a member of the administrative council, being also on the committee which reported last year a plan for the reorganization of the association.



S. W. Watkins, President.



H. N. Covell, 1st Vice President.



J. W. Gardner, 2d Vice President.

His committee work and his participation in discussions on the floor of the association have shown him to be practical and progressive. His company has been prominent in the introduction of the premium system of wage payment.

H. N. Covell, the newly elected first vice president, is superintendent in charge of the works of the Lidgerwood Mfg. Co., Brooklyn, N. Y. He was born in Troy, N. Y., March 25, 1862; prepared for college at King's School in Stamford, Conn., and entered the Sheffield Scientific School of Yale University, graduating in 1883 with the degree of Ph. B. Mr. Covell was engaged with the Yale & Towne Mfg. Co., from 1881 to 1889, and during his residence in Stamford was active in Republican politics and in National Guard matters. He learned the trade of a machinist and had experience in various departments of the Yale & Towne works. He became connected with the Lidgerwood Mfg. Co. in 1889 as assistant superintendent and in 1895 became superintendent. Mr. Covell has been active in employers' association work, having been prominent in the National Founders' Association as well as in the metal trades organization.

J. W. Gardner, manager of the Gardner Governor Co., Quincy, Ill., is the new second vice president. Mr. Gardner is another of the young men who have been given leadership in association affairs, being now in his 40th year. He entered the machine shop at 17 and served an apprenticeship. The shop and the entire manufacturing end of the business have attracted him and received his special attention.

Fred A. Geier, treasurer of the association, is probably one of the best known machine tool builders of Cincinnati, where young men so largely engross the machine tool trade. He was born in 1866. After finishing the high school course at Cincinnati he went West and took a position in a bank. A year later he was called back to Cincinnati by his father's death, and in September, 1887, bought an interest in the Cincinnati Screw & Tap Co., becoming its secretary and treasurer. The name was changed to the Cincinnati Milling Machine Co. in 1889 and the manufacture of milling machines was taken up. The company now employs over 350 men on this single line. It was one of the first machine tool concerns in Cincinnati to engage in the export trade, sending milling machinery abroad as early as 1888. Mr. Geier is a charter member of the National Association of Manufacturers and a charter member of the Manufacturers' Club of Cincinnati, which he has served as president. He is a director of the Ohio Mechanics' Institute of Cincinnati, the first mechanical institute established in the United States. As district chairman of the National Metal Trades Association and first vice president of the Cincinnati Metal Trade Association, he has been active in employers' association work. Mr. Geier is a director of the German National Bank of Cincinnati.

F. A. Geier, Treasurer.

F. E. DuBrul, Commissioner.

Robert Wuest, Secretary.

Commissioner E. F. Du Brul, who was first vice president of the association when he consented to take up the arduous work of conducting its affairs, is an enthusiast in the employers' association movement. Though one of the youngest men in its official list, he has long been a student of industrial questions, having followed closely

the developments in respect to labor unions and their influence upon economical production. Graduating from college in 1892 he took a two years' course later in economics at Johns Hopkins University, having previously studied law for two years. He was connected, when he became commissioner, with the Miller, Du Brul & Peters Mfg. Co., of Cincinnati, whose specialty is the manufacture of cigarette machinery. His conduct of the office of commissioner has been vigorous and resultful. The influence of the association has been greatly strengthened and its membership has shown a marked increase.

Robert Wuest, the capable secretary of the association, was born in Cincinnati in 1864. In January, 1881, he entered the employ of a local paper jobbing concern, and after four years, on the death of the senior member of the firm, it was recognized as Selbert, Wuest & Co. Mr. Wuest remained a partner until 1899, when on the advice of his physician he retired and devoted himself to regaining his health. In March, 1902, he became indentified with the Kisinger-Ison Co., of Cincinnati, machinists, and members of the National Metal Trades Association, devoting his time to the sales department. In July, 1902, at the solicitation of Commissioner Du Brul, he took up the secretaryship of the N. M. T. A.

March Imports of Iron and Steel.

Although the official statistics of the Treasury of imports for March have not been received, the reports of the ports of New York, Philadelphia and Baltimore show that 53,941 tons of pig iron were imported in March, as against 31,932 tons to those ports in February. The March imports came principally from Great Britain, 40,888 tons having been forwarded, while 13,013 tons came from Continental Europe. The pig iron shipped from the United Kingdom was sent from Middlesboro principally, 17,524 tons having been forwarded. Eight thousand three hundred and eighty-one tons came from Liverpool. Newcastle-on-Tyne sent 6,685 tons. Four thousand tons were imported from West Hartlepool. Glasgow sent 3,613 tons, while lots under a thousand tons came from Hull. Nine thousand and forty-nine tons were shipped from Rotterdam. Trieste sent 3,000 tons. Bremen and Genoa also made shipments. Three hundred tons came from Singapore.

The imports of scrap iron, old iron rails, iron plates, bar iron, structural iron, crop ends, steel billets, steel beams, steel blooms, steel wire rods, scrap steel, old steel rails, etc., at the three ports, aggregated 14,297 tons, as compared with 12,252 tons for February. The bulk of the shipments were made from Continental Europe.

Seventy-two thousand and fourteen tons of iron ore, iron pyrites, chrome and manganese ores were imported last month. The March iron ore imports represented a total of 57,411 tons, being a decrease of about 40 percent when compared with those made in the previous month. This material came chiefly from Cuba, as heretofore.

The Aultman Co., of Canton, O., having received an inquiry whether it will be affected by the failure of Aultman, Miller & Co., of Akron, O., makes the statement that there it not the least connection between the two houses, no business or other relations, and that nothing has passed between them in the way of accommodations. The late Cornelius Aultman at one time was interested in both and hence the similarity of corporate names, but for years neither his estate nor his descendants have had any interest in either. The Aultman Co. does not make harvesting machinery, which was the sole line of Aultman, Miller & Co. Traction engines and threshers, ice-making and refrigerating machines, and general jobbing and engineering work are the lines in which the Canton company has been engaged. All these are prosperous, and the demand last year was greater than the output. This year the company is making every effort to enlarge its product considerably in every line.

MOLDING SAND.

The following paper was read by F. E. Gordon, president of the Ohio Sand Co., Conneaut, O., at the meeting of the Pittsburg Foundrymen's Association, April 6:

Eternal vigilance is the price of good molding sand as well as good castings. Without it we get into a rut and stay there until we lose our energy and ambition, and take it for granted that everything is going smoothly, until the unpleasant but inevitable awakening. Some men have spent most of their lives in a foundry, yet today make no better castings than years ago. This is true of many sand men. Many of us have breathed wrong since we were born. Some of us don't breathe as well now as we did the first day. To illustrate this, a correspondent writing from New York reports a speaker calling the attention of his audience of several hundred to this fact, as follows: "You are in a rut. You don't breathe right. To prove it, everybody take a long, full breath (everybody straightened up). Hold it a moment; now exhale. Try it again." And they all did, and the decorations began to wave, the windows to rattle and the doors to swing.

Sand is part of the foundation, in some of its various forms, of the greatest structures of the world (and its greatest men), as well as of the foundry business; and yet in all its various uses it receives but little consideration as compared with other materials used in conjunction with it. There are different kinds of sand as there are different kinds of people, and their uses just as divergent.

The sand in which you are most interested was first discovered in the Albany and Jersey territory, and has ever since enjoyed the confidence of the trade, and when selected by experienced and reliable men still justifies this confidence. Albany sand is a surface or shallow-veined sand lying immediately below the top or agricultural soil, which runs from 7 to 10 inches and is stripped off in benches about three feet wide, running the length of the pit, or as long as may be convenient. The underlying sand will run from 6 to 24 inches deep, with an occasional pocket running 3 to 5 feet, but the average will not exceed 18 or 20 inches.

When you know that from 25,000 to 30,000 cars, or 900,000 tons, are shipped from this territory annually, you will see that a vast territory has been worked over, and that all sand sold in the last 50 years could not have been Albany sand, nor could all Jersey sand have come from the original pits. Some concerns have been able to discover sand of the same quality in other localities, to keep up the supply, but it becomes more difficult each passing year.

The next territory in age and reputation, supplying the market west of the Alleghany mountains, is that in which I am interested—Conneaut and Kingsville—which has been supplying the trade for 45 years, and about 20 years ago became the first formidable competitor of Eastern sand. It is a close duplicate of Albany sand. This sand is also shallow-veined, and the pits in our territory are operated the same as Albany. These sands have always been known as "safe" sands, containing the necessary bond, and yet open enough to vent freely and not scab, cut or blow, with reasonable care.

The next sand territory of like nature has been known as Sandusky, but on account of its running to the extreme in openness, and nearly every farmer loading his own sand, and not knowing a snap flask from a cupola, and with supervision which is but little better posted, its use has been confined to its own locality, its quality never retaining a trade that would carry freight rates of $1 to $6 a ton.

Ohio has still another territory well and favorably known in other markets as well as Pittsburg. I refer to the Zanesville sands, generally known as Zanesville Red and Zanesville Fine. These sands are all deep vein sands. Stripping runs from 2 to 12 feet. They are of a different nature entirely, and yet have their uses and friends. The territory, however, does not decide the question. There

are faults in all territories and in all deposits, sometimes as clearly defined as bright day from dark night, and sometimes verge from good to bad as the day verges into the night, and this is where eternal vigilance and experience count.

Pittsburg has a great reputation for heavy castings, but some foundrymen in Pittsburg have demonstrated beyond a doubt that as poor castings can be made here as anywhere else. Foundry practice has also demonstrated that castings can be made in almost any kind of material, but from a personal experience of 17 years in the foundry business and ten years in the sand business, I have come to know there is a happy medium in this as in all other things. In deciding the sand question, however, it is hard to arrive at this happy medium.

The difference of a few cents or dollars a ton on an invoice is easily computed, and too often decides the quality when the purchasing agent or office man decides it. If the man who has to produce satisfactory castings at a satisfactory price complains, he is frequently told that so and so use it and they do good work; but how about the cost in ambush? The foreman may say this sand requires more care on the part of the molder to produce good results, the percentage of loss is higher, and the cost of cleaning or waste of the sand is greater; but all this is largely a question of estimate, while the office is positive of the invoice difference of 5 cents a ton and that counts, and the dollars in ambush are not discovered soon enough if at all.

Sand, one of the largest factors of production, is one of the very smallest items of cost per ton of castings, and 5 cents per ton will decide the quality quicker than $1 per ton will the iron. I take the position that the "man behind the gun" is the man who should decide upon the cost and quality of the molding sand. He is responsible for "hitting the target," and if he has not the power to decide upon the materials that are necessary to accomplish this result, human nature will not permit him to exercise the same energy, the same eternal vigilance that he otherwise would. You may supply your foundry with the best coke, the best iron, the best molding machine, the best patterns, the best flasks, the best mechanics and the best of everything else, and you will fail to get results unless your foundry management has got the molding sand that meets its approval. There is no evading this point. The proper sand for the purpose can be obtained at a reasonable first cost, and as the difference between the first cost of the cheapest material you can secure, and the choice of the best material on the market, will seldom exceed $1 or $1.50 per ton, I insist that you cannot take the cheap material, if it is not originally adapted for your purpose, and obtain the same results at the same cost that you can with the higher priced article.

The time spent by the laborer, facing mixer and molder in toning up an inferior article, corresponds to part of the cost in ambush previously referred to. A secondary part of this cost in ambush is the discount pile in the foundry. The next is the increase expense in cleaning and correcting the imperfections in the casting as it leaves the molder, and last but not least, when the casting has been entirely completed in the foundry, passed over the scales and on to the books, to its last and final test, it enters the machine shop, and hours and sometimes days are spent in machining it, and then a material defect is discovered, and the loss in this direction in its grand total is appalling. Yet, gentlemen, how many of you here will shut your eyes to this cost in ambush when the sand man comes along and asks you a price for a satisfactory article, slightly above the price for which you can obtain something else. This cost in ambush cannot be uncovered without eternal vigilance, backed by good horse sense, which may, after all, be the foundation of everything, rather than sand, as I have heretofore claimed.

In conclusion, for your benefit and the sand-man's, bear in mind there are no roofs over sand pits, and if your orders are not placed far in advance of your needs, they may have to be loaded when the sand contains an excess of moisture, to the detriment of all concerned. After an order is received, it is necessary to obtain empty cars, then, weather permitting, the sand is loaded; but the nature of the business is such that it must allow for car supply, rain and labor, and rain means much in the sand business. Sand cannot be properly loaded in the rain, and oftentimes it requires several days for sand to dry out after a hard rain. The location of sand deposits often means a limited supply of labor available at the pit, and additional help for short periods is not available as in a city, nor is it as desirable.

The man who places his order early in the season for shipment at regular intervals, as his wants may require, and counts on getting his winter's supply during July, August and September, and from that time on until the end of the season, and replaces, until the season closes, such as may be consumed, can afford to pay 10 percent for the money used and will be the sand man's best friend.

The recent increase of the capital of the United States Heater Co., Detroit, from $100,000 to $200,000 was made necessary by reason of the extraordinarily rapid growth of business, and the fact that the company have found it necessary to engage in the manufacture of radiators, which has entailed a material enlargement of the plant and general organization. The company recently acquired a plat of ground upon the north side of its plant, which just doubles the size of the property. Upon this ground it is already occupied in extending a number of buildings. The property now covers an entire block, 368 ft. in width by 502 ft. in depth. The new line of "Capitol" radiators will be ready for the market about July 1st, and will be marketed direct to the boiler customers who have for a long time expressed a desire to purchase from the company, with their boilers, radiators of the same manufacture, rather than to divide their business for heating material. The addition of this radiator business will double the output from the plant within the next six months. The board of directors has been increased to five, and now stands as follows: President, Geo. A. Ducharme; vice president, treasurer and general manager, Henry T. Cole; superintendent, John A. Rathbone; new directors, Clarence A. Black and John T. Shaw.

It is understood that the recent inspection of the plant of the Bethlehem Steel Co., Bethlehem, Pa., by Chas. H. Schwab, Jos. E. Schwab, W. E. Corey and others, was in connection with certain plans for the enlargement of the Bethlehem works. The plant will, it is said, be much improved and additions which will add greatly to its capacity will be built. The production of armor plate has not been adequate to meet the demands of the government for several years.

The University of Wisconsin, Madison, Wis., in Bulletin No. 65 makes announcement of its plans for the summer school for artisans for 1903, which will be conducted by the college of engineering. The session opens July 6 and ends Aug. 14. The school has been established for the benefit of machinists, carpenters or sheet metal workers; stationary, marine or locomotive engineers; shop foremen and superintendents; superintendents of water works, electric light plants, power stations, factories, etc. This is the third session of this school. The first was attended by 44 students and the second by 70.

The construction of the by-product coking plant of the Zenith Furnace Co., at Duluth, Minn., will now be pushed. The legislature has passed the bill under which the city of Duluth will be enabled to make a contract with the furnace company to provide gas for the people of Duluth for heating and illuminating purposes. The furnace company some time ago announced that it would construct a by-product coking plant if the gas could be sold.

PRESIDENT PARRY'S NEW ORLEANS ADDRESS.

The eighth annual convention of the National Association of manufacturers assembled in New Orleans, Tuesday, April 14. The session will continue until Thursday evening. President Parry delivered an address of about 30,000 words, discussing with much vigor numerous questions affecting capital and labor. In opening, he said:

"With over 2,000 manufacturing establishments of the country on its rolls, as compared to less than a thousand a year ago, the association has become more than ever the unrivaled organization of its kind in the world. It stands today as the most efficient mouthpiece of those whose capital is invested in productive enterprise. It stands as a bulwark of progress and as a foe to every agency or force that, through ignorance or deliberate intent, would check industrial development or wreck our free institutions on the rocks of economic fallacy. The influence the association has exercised during the past year on the course of national legislation and public thought has been large and wholesome, furnishing signal proof of the power of organization and vindicating its usefulness, not only to its members, but to the country as a whole. Largely through its endeavors the new Department of Commerce has been created, and another measure of vast importance, the Isthmian Canal Bill, to which it gave its hearty support, has been enacted into a law since our last convention. The association also vigorously opposed the eight-hour and anti-injunction bills in the last Congress. The defeat of these measures may, in my opinion, be justly credited to the hearty co-operation of our members in the campaign waged against the bills. The fight made against these bills involved a contest with organized labor, which fathered them, and an agitation was inaugurated against an organization which would demand such un-American legislation. This agitation has been far-reaching, and has produced a distinct change in current sentiment, as indicated by the press and public utterances of prominent men. While the association has obtained tangible results in other directions aside from those mentioned, yet this contest with organized labor will appear to many to be an overshadowing feature of the past year, and its consideration will, therefore, be given first place in this report.

"By its determined opposition to the passage of the eight-hour and the anti-injunction bills this association performed what, to my mind, was a great public service, the full significance of which is, perhaps, not realized even by many who were foremost in condemning those measures. The mere defeating of these two bills does not tell the story. What was done that was much more important and far-reaching was to give an opportune check to socialistic impulse. It is impossible to hide our eyes to the fact that a large mass of the people, forgetful of the liberties and blessings they now enjoy, are with reckless ardor striving to force the nation to what must eventually mean industrial disaster, if not anarchy and despotism. Organized labor, an army presumably two millions strong, feeling its strength and exultant over many victories it had won, concluded last winter that the time was ripe to make Congress engraft upon the statute books of the nation its sprigs of socialism, legalizing those denials of individual rights which it has heretofore sought to enjoin by force. It drew up and fathered the eight-hour and the anti-injunction bills, the former of which could well have been entitled, 'An act to repeal the bill of rights guaranteeing the freedom of the individual,' and the latter should have been termed, 'A bill to legalize strikes and boycotts.'"

Abuses of Labor Unionism.

An extended discussion of labor unionism follows. Mr. Parry says in part:

"Organized labor knows but one law, and that is the law of physical force—the law of the Huns and Vandals, the law of the savage. All its purposes are accomplished either by actual force or by the threat of force. It does not place its reliance in reason and justice, but in strikes, boycotts and coercion. It is, in all essential features, a mob-power, knowing no master except its own will, and is continually condemning or defying the constituted authorities. The stronger it grows the greater a menace it becomes to the continuance of free government, in which all the people have a voice. It is, in fact, a despotism springing into being in the midst of a liberty-loving people.

"Organized labor is particularly denunciatory of trusts, but what greater trust is there than itself? It is the grand trust of the times. It is the muscle trust, the trust of men who make their living by manual labor. It is to be hoped that, in accordance with the Nelson amendment to the department of commerce bill, the government, in turning the searchlight of publicity on the trusts, will not forget organized labor. If any institution needs to be exposed to the limelight, it is certainly trades unionism. But it is not only a trust itself; it is a creator of other trusts—of capitalistic trusts, as distinguished from labor trusts. One of the leading causes for the formation of a number of the industrial combinations has been the necessity that has confronted employers to unite, that the exactions of labor might be more effectively dealt with. Organized labor is not only seeking to absorb with its tentacles all the manual workers of the cities and factories, but it is also reaching out to take in the farm laborers. Unions of the latter are reported to be rapidly growing in Illinois and Indiana. It is also stated that they are preparing to exact double the wages heretofore paid for this class of labor. If a compact organization of farm hands could be formed, a very serious problem would confront not only the farmers, but the entire country. There can be no doubt that such an organization would demand, with all the unreasonableness of ignorance, a wage scale that would greatly enhance the cost of living to each and every one, and would in all likelihood bring about the ruin of our immense export trade in grain and flour. Organized labor and the Socialist party differ in one essential respect. The former seeks to bring about socialism by forcible methods, and the latter seeks the same end through the ballot box. Its attempts to compel the shortening of the hours of labor without regard to the effect on industrial welfare, its dictation of uniform wage scales, which place the indolent and inapt on the same footing with energy and capability, and the absolute power it arrogates to itself over the individual, on the theory that the individual has no rights which the many need respect, are all cardinal principles of socialism. Socialism is a denial of individual and property rights, and so, also, is trades unionism, when reduced to its last analysis."

The anthracite coal strike and other strikes are reviewed and Mr. Parry says:

"The bloodshed in West Virginia and the reign of terror in the anthracite fields during the strike, with its murders of non-union men, its flooding of mines and its defiance of law, are, in the language of C. S. Darrow, the attorney friend of the miners, mere 'incidents of a great contest.' Mr. Mitchell declares that 'no strike was ever won by violation of law,' but the fact is that no strike was ever won in any other way. The trades union theory of raising wages regardless of natural law must have physical force back of it to become effective, and a strike is the manifestation of that force. A strike is a blow at the social order, trampling into the dust individual and property rights and substituting the terrorism of the mob for legal and orderly government. Properly defined, it should be termed insurrection, and the heroes of strikes, no matter how sincere their professed desires to better mankind, are leaders of revolution."

Employers' Association.

President Parry makes a strong appeal for organization of employers, saying in part:

"The most obvious way in which employers' associations can accomplish good is to conduct a propaganda

along the lines of truth and justice, and thus administer an antidote of common sense for the sophistry of the agitator which is now poisoning the minds of so large a mass of the people. In a country governed by public opinion the great public is the final court which determines the right of any matter affecting the general welfare, and it should be one of the highest duties of an employers' association to give a proper presentation to this court of the employers' side of each labor controversy. In order to gain the support of public opinion it must not be forgotten that no employers' association can afford to take a stand at any time that is not in accord with justice, and the best interests of all the people. The newspapers, finding that they have the moral support of a strong employers' association, can, I think, be depended upon to take a more positive stand against the outrageous practices of unionism than it is wise for them to do without such support. The employers' association can stand for the right of its members to employ whom they please, for the right to hire as many apprentices as they deem necessary, and for the right to conduct their business untrammeled by the many petty exactions of unionism. They can also perform a great service by making it possible for thousands of men to shake off the shackles of unionism, which they now unwillingly bear, and they can furnish protection to the independent workman who holds dear the right to dispose of his labor as he sees fit. Thus in many ways can employers' associations set about the task of pulling up, root and branch, the un-American institution of trades unionism, as at present conducted. It is to be thoroughly understood, I hope, that I do not mean that unions, in themselves, should be the object of attack, but, rather, those pernicious theories and practices which go to make up what is known as modern trades unionism. The right of labor to organize can not be questioned, but the misuse of the power of its organization is a legitimate object of attack."

The Boycott and the Picket.

Mr. Parry criticises the methods adopted by the American Federation of Labor, saying in part:

"Two of the products of organized labor for which the American Federation evinces a lively solicitude are the boycott and the picket. The boycott is the celebrated scarecrow which labor keeps in its closet and threatens to bring out the moment an employer declines to admit its demands. As defined by the Century Dictionary, the word boycott means 'the act of practicing or subjecting an obnoxious person or company to the organized persecution called a boycott.' The definition is exact—the boycott is nothing more or less than organized persecution. It is the twin brother of the black-list, and neither has any place in this country. The boycott against the individual personally is one of the most brutal and despicable weapons ever used by bodies of supposed civilized men. Where organized labor is strong a non-union man is subjected to all manner of persecution and outrage. The number of men who are murdered each year because they refuse to obey the unions would make a significant statistical record. The organized persecution directed against the business of an individual or company—and this is the sense in which the term boycott is most frequently used—has happily, however, grown almost innocuous except where the unions dominate. The American Federation of Labor dishes out this class of boycotts by the wholesale at every convention it holds, and its leader goes about the country making specious pleas in their behalf. That the most of these boycotts are perfectly harmless is notoriously true, but it is not the fault of the federation that such is the case. That body declares the boycotts in the full desire that they will ruin the businesses of those boycotted, and if it only had sufficient power it would give no quarter.

"The extreme to which boycotting sometimes goes is well instanced by the action of the Central Labor Union, of Indianapolis, a few months ago, when a new bridge being constructed on the leading thoroughfare of the city was, with due solemnity, declared to be boycotted. The trouble all arose over a non-union man committing the heinous offense of working a day or two in firing the construction engine, or something of that kind. While admitting that the bridge needed boycotting, several delegates concluded that they had to cross the bridge twice a day or swim the river. They therefore sent in a vigorous appeal that the boycott be rescinded. It was decided not to swim. On another occasion this interesting body boycotted the State Fair, because a few pig pens had been constructed by non-union carpenters. Attendance at the fair did not suffer any noticeable falling off. There seems to be nothing that is immune from the labor boycott. But, while many boycotts are farcical and ineffective, yet it must be remembered that behind them is the fell intent to injure, an intent that would be carried out if the unions had sufficient coercive influence."

President Parry declares that the policy of conciliation in regard to organized labor is a policy of expediency toward a power which enforces its demands at the point of a gun." He also denounces compulsory arbitration. The tariff and reciprocity are considered at length and he suggests the adoption of a plan analogous to that of France of having minimum and maximum tariff schedules, the minimum tariff to be granted to any country which offers satisfactory concessions. Consular reform is urged; commercial education is approved; the repeal by Congress of the desert land act, the commutation clause of the homestead act and the timber and stone act is recommended; and the post check system is indorsed.

EASTERN PENNSYLVANIA.

(Special Correspondence.)

HARRISBURG, PA., April 14.—A number of decisions of importance to companies incorporated in other states and doing business in Pennsylvania have been rendered in the Dauphin county court, where state cases involving state taxes on loans and capital stock are tried. In these cases, two of which were the Crucible Steel company and the Park Steel company, it was held that the Commonwealth of Pennsylvania cannot collect a bonus on capital of "foreign" corporations under certain conditions. Several other cases are before the court.

S. Morgan Smith, one of the best known of the Pennsylvania manufacturers, died in California, April 12, after a short illness. He was widely known as a maker of turbine wheels and operated a large plant at York under the name of the S. Morgan Smith Co.

Carpenter Steel Co. officials at Reading say that they know nothing of the reported purchase of their plant by the Crucible Steel Co.

The Pennsylvania Steel Co. has 8,150 men on the rolls of its Steelton works—the highest number yet.

The Bethlehem Steel Co. has started another furnace at its works.

The Diamond Drill & Machine Works at Birdsboro have started their open-hearth steel plant. The company is still making extensions.

The molders of Luzerne county have been given a wage increase.

The Curry & Ganan foundry at Danville was damaged by fire.

Through railroad improvements it is probable that the Superior Chain Co., which has works at Marysville, near here, will be compelled to move its plant which was built a few years ago.

The March-Brownback Stove Co., of Pottstown, has declared a 3 percent dividend, the highest in years. The new board of directors is Franklin March, James Rodgers, T. J. March, A. A. Shaner, Dr. J. E. Porter, M. W. Bailey and James Brownback.

The Semet-Solvay Co. has started on the foundations for the new coke ovens for the Tidewater Steel Co. at Chester and in seven months they will be in operation.

The Central Iron & Steel Co., Harrisburg, produced over 13,000 tons of plate in March.

Improvements are contemplated to the Mt. Carmel (Pa.) Iron Works.

The Belmont Iron Co. may locate at Chester. Committees have been looking over sites and getting plans.

Puddlers are now getting $4.50 in the Schuylkill Valley and helpers are doing well. There is a cry for puddlers in Pottstown, Reading and Lebanon.

The report that the Jersey Central shops are to be moved from Ashley to Mauch Chunk is authoritatively denied.

The Reading Supply Co., to deal in machinery, has been formed at Reading by Oliver S. and H. H. Geiger and Harry W. Crooks. Capital stock, $50,000.

The Pennsylvania Steel Co. will build additional boilers for its blast furnaces, electric plants and shops at Steelton.

The Landis Tool has compromised on a 5 percent increase for its men at Waynesboro.

H. P. Cooper, of Allentown, formerly with the Pottsville Iron & Steel Co., is the new superintendent of the Emaus furnaces of the Reading Iron Co. He succeeds John Breslor, who went to Lebanon.

None of the principals in the Eastern Steel Co. which is building the plant at Pottsville is connected with the Pennsylvania Railroad or the United States Steel Corporation. The works will start in July.

A METHOD OF HANDLING PIT SCRAP.

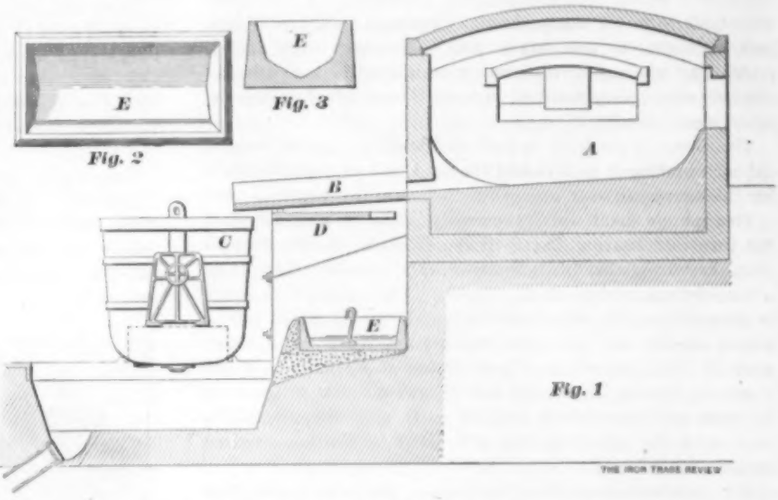
The Carnegie Steel Co. employs at the Duquesne Steel Works, at Duquesne, Pa., an apparatus for handling pit scrap from open-hearth furnaces, which has been in use for about a year with very satisfactory results. A patent on the method was recently granted to Frank E. Parks, superintendent of the open-hearth department. The metal is tapped into the ladle by means of a trough or spout, and after the spout is removed small quantities of the steel remaining in the furnace drip from the tap-hole into the pit underneath. These ordinarily collect with the slag in this pit and the mass is later taken out to a skull-cracker and broken up into fragments small enough for the charging boxes. This involves considerable trouble and expense.

The invention provides an open mold placed in the pit at a considerable distance below the metal spout and of such a size that the steel collecting in it will form a casting which can be easily placed in the charging-box without breaking up. The mold is of such a shape that the casting can be stripped upwardly from it, the mold remaining in place. The latter is not permanently secured in position, but merely rests upon a suitable foundation, a slag packing around it, so that in case of any trouble resulting from an accident in casting the box can be picked out and removed by a crane.

Fig. 1 is a vertical cross-section of an open-hearth furnace arranged in accordance with the invention. Fig. 2 is a top plan view of the mold or box, and Fig. 3 is a cross-section. B is the removable metal spout, supported upon a removable bridge D, extending between the sides of the fore pit, which is between the furnace and the main pit in which the ladle sits. The mold E to receive the drippings consists of a single casting with a cavity having diverging sides, the longest dimension being in line with the spout.

After tapping, when the furnace is practically dry, the spout is removed and the remaining drippings fall from the tap hole into the mold. If the holes in the furnace hearth are puddled after the heat, the steel forced out of them will also drip into the box. Before the heat is tapped a metal bar or piece of scrap is set in the mold with its end projecting out, so that the drippings will congeal around the shank and embed it, and when the drippings have flowed out after the tapping of one heat the casting is pulled out of the mold by means of the projecting hook. This casting is then put in a charging-box and charged into one of the open-hearth furnaces in the ordinary way. Any slag which falls into the mold with the steel separates and is easily removed from the casting.

Forming a casting of proper size for recharging into the furnace means a considerable economy, for the steel is so tough that when the drippings collect in large irregular masses on the bottom of the pit, it is difficult to break them up into fragments suitable for recharging. The placing of the box at a considerable distance beneath the spout is important, as otherwise an overflow of metal in the box would weld it to the bridge and necessitate a new bridge and breaking up the mass. As arranged if a box overflows the surplus metal merely runs into the pit; but the box is of such size that in ordinary practice it will more than contain the amount of drippings from a single heat.



A METHOD OF HANDLING PIT SCRAP FROM OPEN-HEARTH FURNACES.

The Fillmore Avenue Foundry & Iron Works, Buffalo, has been incorporated with a capital of $50,000. The directors are: Emily S. Hubbell, L. P. Hubbell, M. H. Sears and C. T. Wallace. The new company is to continue the business of the old Fillmore Ave. Foundry & Iron Works, run during the past year by the estate of Lyman Hubbell. Attention is wholly given to the manufacture of the first grade of machinery, furnaces, and building castings. The officers of the new corporation are: Lyman P. Hubbell, president; Chas. T. Wallace, secretary and treasurer.

The Lackawanna Steel Co. will erect a hospital at West Seneca, near Buffalo, N. Y. This will be known as the Moses Taylor Hospital, and will be operated by the company. The frontage will be 100 feet with two wings each running back 80 feet. The structure will be three stories high and no combustible material will be used in any part of its construction. It will be exclusively a steel, brick and granite building. The complete plans for its operation are not yet announced but in the interior arrangement the equipment will be very complete and follow the best in modern hospital requirements.

The consolidation of the Port Huron Engine & Thrasher Co., the Port Huron Mfg. Co., the Port Huron Malleable Co., and the Vine & Root Machinery Co., all of Port Huron, Mich., the Port Huron Co., Peoria, Ill., and the Port Huron Machinery Co., Ltd., of Des Moines, Iowa, has been effected. The capital stock is $1,200,000 common and $800,000 preferred. The officers are: President, Charles F. Harrington; vice president and general manager, Frank A. Peavey; secretary, Dexter C. Kinch; treasurer, Henry T. Hoyt. Headquarters will be at Port Huron. The business of the Port Huron Engine & Thresher Co. has grown from an annual sale of $300,000 in 1897 to nearly $1,300,000 in 1902.

THROOP UNIVERSAL GRINDER.

The Throop universal grinder is shown at work in Figs. 1 and 2, the former illustrating the tool as employed in backing off a reamer and the latter showing the manner in which it may be applied in truing up a set of chuck jaws. The grinder may be readily attached to any machine tool and in shop service where it is manufactured the device is found frequently on either lathe or shaper and is equally useful as a bench tool. It is of a portable character and is composed of a ⅙-horsepower motor fastened securely on a base plate to which is also attached the spindle head, the bed plate being

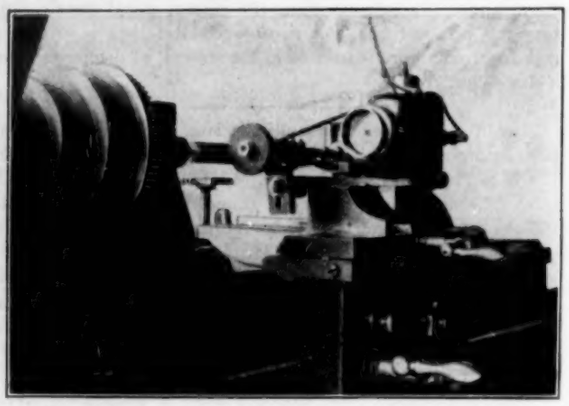


FIG. 1.—BACKING OFF A REAMER WITH THE THROOP GRINDER.

adjustable to fit the many sizes of lathes. An endless ¾-inch belt is driven by the motor with a two-step cone pulley, 3-inch and 2⅝ inches in diameter, connected to a 1-inch and 1⅜-inch cone pulley fastened upon the sleeve which drives the emerywheel spindle.

The sleeve is made of ¾-inch tool steel, 4½ inches long, a 1½-inch bearing at each end of the head, and provision is made for taking up all wear.

The spindle upon which the emery wheel is fastened, does not turn in a bearing, but is driven from the sleeve, the two being keyed together in such a manner as to allow the spindle a longitudinal movement of 3 inches. The spindle is $^{9}/_{16}$-inch in diameter, and by means of a collar the emery wheel can be locked against end play when the machine is used for bench work or when the ordinary feed motion of the lathe to which it may be applied is sufficient for the traverse. At other times as when grinding centers, angular work generally, the 3-inch motion of the spindle is brought into use for the required traverse of the wheel.

The grinder is fastened to the lathe or planer by one ⅝-inch bolt which permits the operator to set the machine at any desired angle and he can of course have in addition the use of the two movements of the lathe carriage. The spindle is driven at either 7,000 or 10,000 revolutions per minute and the range of grinding is from a 3-16-inch hole to the full capacity of the lathe.

A set of emery wheels is sent with each grinder; a ½-inch stick of emery and a chuck for holding same. This chuck screws upon the end of the spindle and is arranged for gripping stick emery for small internal grinding as illustrated in Fig. 2. Ten feet of pliable cord double is also furnished with an Edison screw lamp socket fastened to a switch upon the motor. The grinder is started or stopped by a small switch of a similar pattern to those seen in connection with the familiar incandescent lamp sockets. The power can be supplied direct by any special fixture and suitable wiring or can be obtained from a convenient lamp socket.

The motor is enclosed, there being no part of the armature exposed, and is so constructed as to be as dust-proof as appears practicable. The machines are furnished for the following voltages: 110, 115, 125, 220, 230 and 250. The motors are manufactured expressly for this work. The grinder when complete weighs 22 pounds.

The designer of this tool introduced it with a view to the occasional need of the small shop for a grinder—a need so limited as not to encourage the outlay on a large machine—but the ready attachment of the device to machine tools has brought about a demand from an unexpected field. The grinder is manufactured by the Throop Perforating Co., of Buffalo, N. Y.

The Field-Evans Iron Co.

The Field-Evans Iron Co. has been organized at Cincinnati to take over the pig iron and coke business and the agencies of the Field-Croxton Iron Co. The authorized capital is $200,000, of which $125,000 is subscribed and paid. The general offices will remain in Cincinnati in charge of Robert Field, first vice president. The Cleveland office will be in charge of William Wieman, second vice president, and the Chicago office in charge of David Evans, president, while the St. Louis office will remain in the hands of E. C. Smith as district manager. Among the agencies of the company are those for the irons of the Sloss-Sheffield Steel & Iron Co. and the La Follette Coal, Iron & Railway Co.

General Superintendent A. R. Hunt, of the Duquesne plant of the Carnegie Steel Co., has received a letter from Andrew Carnegie in acknowledgment of a set of resolutions passed by the men employed at this plant thanking Mr. Carnegie for the establishment of the $4,000,000 pension fund. It says: "I have acknowledged to Mr. Wilmont the touching tribute from the men of the Duquesne works, but I cannot refrain from telling you direct that this evidence of their regard went straight to my heart and stays there. No fund ever founded by me has quite the charm that this has. Thanks to those who labored so long and so well for us, and through whose efforts I have obtained a fortune. Every meeting I had with the working men (I had many for 20 years when located in Pittsburg) drew me more to them. They have many virtues which rich employers lack. If both sides knew the other there would be harmony. I value this tribute more than if it were signed by the kings of earth."

Concerning the quarterly report of the United States Steel Corporation, J. P. Morgan & Co. gave out the following: "The decrease in earnings was primarily due to the congestion of railroad transportation. The United States Steel Corporation turned out the business, but a large part of it was not moved, being tied up in railroad yards. As is our custom, we

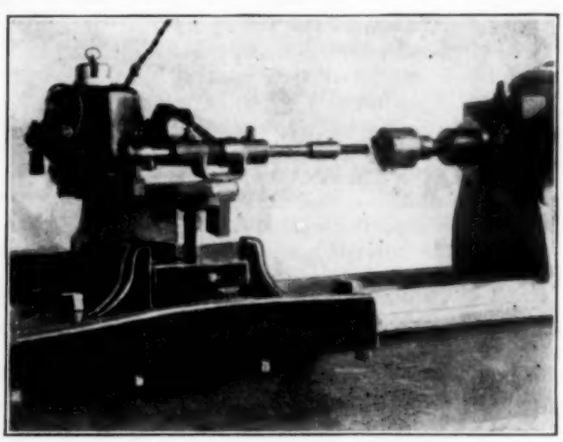


FIG. 2.—TRUING UP CHUCK JAWS WITH THE UNIVERSAL GRINDER.

report only what goes forward. The next quarter should reflect a good deal of the business which would naturally have been referable to the March quarter, but to just what extent it will be larger than the second quarter of last year I would not like to say. But I may say that the company's business has not fallen off materially as a result of any reduction of prices. On the contrary, it continues to expand in a satisfactory way and with better railroad facilities we will not be disappointed in the returns."

The Martineau Co., Quebec, recently incorporated, succeeds the firm which has been in business since 1867.

INDUSTRIAL SUMMARY.

[If you are in need of machinery of any description, please notify *The Iron Trade Review*, and we will put you in communication with our advertisers at once.]

New Buyers in the Market and Some of their Wants:—

The Trojan Foundry Co., Troy, N. Y., has been incorporated with a capital stock of $2,000. The directors are: Thomas C. Boswell and Samuel L. Taylor of Tryo, George W. Wilcox of Green Island and David B. Wilcox of Brunswick.

The William Jacobus Co., of New York, has been incorporated with a capital of $10,000 to manufacture machinery. The directors are: Fred L. Downs and William Jacobus, of New York City, and Mark Rosentine, of Paterson, N. J.

The American Machine Wrench Co., capital $100,000, has been incorporated at Denver, Col., by Joseph Johnson, I. Coulter, and N. F. Adamson, of Denver.

The Richmond Foundry Co., Belleville, Ill., has increased its capital from $1,000 to $6,000.

The Case Foundry & Machine Co., Kalkaska, Mich., has been incorporated with a capital of $12,000.

The F. A. Irons Metallic Packing Co., of Chicago, capital $20,000, has been incorporated to manufacture and sell machinery.

The Motor Truck Co., Columbus, O., has been incorporated under the laws of West Virginia with a capital of $100,000 to manufacture, buy and sell trucks and vehicles and parts thereof.

The Texas Bridge Co., Dallas, Texas, has been incorporated with a capital of $5,000 to manufacture and sell all kinds of bridges and structural metal work.

The W. B. Hathaway Co., Cincinnati, capital $50,000, has been incorporated to manufacture stamps and dies. The incorporators are: Wm. B. Hathaway, David L. Caulins, J. C. Grimes, Albert C. Fischer and H. M. Curtis.

The Adapt Machinery Co., Chicago, capital $2,500, has been incorporated for the purpose of manufacturing tools.

The Adjustable Clamp Co., Chicago, capital $2,500, has been incorporated to manufacture hardware specialties.

The St. Lawrence Steel & Iron Co., Syracuse, N. Y., capital $50,000, has been incorporated to develop the iron mines at Keenes, located on the boundary line between Jefferson and St. Lawrence counties, about 100 miles from Syracuse.

The Star Expansion Bolt Co., New York City, capital $30,000, has been incorporated with W. C. Foster, H. S. Harrington and W. J. Martin, all of New York, as directors.

The Chapman-Baker Machine Works, San Francisco, capital $25,000, has been incorporated with the following directors: R. S. Chapman, Fred Baker, T. E. Atkinson, R. P. Chapman of San Francisco and S. M. Chapman of Napa.

The Iowa Mining Tool Co., What Cheer, Iowa, will build a machine shop for the manufacture of mining picks.

The Blackshear Mfg. Co., Blackshear, Ga., will buy a new or second-hand planer 18x18x48 or 54 inches, one short lathe with swing of not less than 48 inches, small cupola complete, capacity 1,500 pounds per hour; 125-horsepower 125 pounds pressure tubular boiler, and 100-horsepower side-crank slide-valve engine.

G. H. Zempter Pneumatic Cotton Harvester Co., Memphis, Tenn., is in market for several three-horsepower gasoline engines and exhaust fans, also steel-rimmed agricultural wheels six inches in diameter.

M. E. Davis, 11 Broadway, New York City, is in the market for two 40-ton standard-gauge geared locomotives.

The Vilter Stamping Co., Loveland, O., has been incorporated with a capital of $50,000, for carrying on a general stamping of sheet metal; manufacturing and jobbing of tinned, japanned and galvanized ware, dealing in tin plate, metals and tinners' supplies. The plant will be equipped with the latest improved machinery for conducting the manufacturing and jobbing of this class of wares. Catalogues are requested.

The Seneca Iron Works, Seneca, S. C., wants second-hand No. 3 or 4 universal milling machine, 12, 16, or 18-inch shaper, 24, 30, or 36-inch tilting table, band saw, also 26 to 30-inch swing 12-foot bed engine lathe.

Wilson Foundry & Machine Works, of Kanawha Falls, W. Va., has been incorporated to manufacture and sell car wheels, chutes, scales and appliances used in connection with coal tipples and inclines. Capital, $30,000. Incorporators: J. Turner Morehead, George F. Seward, of New York City; John A. Wilson, of Kanawha Falls, W. Va.; S. L. Walker, J. C. Wheeler, Jr., and R. J. Thrift, of Fayetteville, W. Va., and S. A. Hutchinson, of Oak Hill, W. Va.

Leo Weiss & Bros., Pittsburg, Kans., are in the market for a spring motor to pull about 100 pounds.

The Lake Erie Mfg. Co., of Ashtabula, O., has been incorporated with $50,000 capital to manufacture shovels, picks, forks, hoes, rakes and scoops. J. W. Kankonen, C. Pottis, John Rauberg, O. S. Rauberg, C. F. Schaeffer and A. Strauss are the incorporators.

The Riverview Coal & Coke Co. will increase the size of its coke plants in the Uniontown, Pa., district, by the erection of 400 additional ovens in the near future. Eighty new ovens at Riverview plant No. 1 are nearing completion and will be fired within a few weeks.

The Goshen Hill Coal Co., of Cleveland, O., has been incorporated under the laws of West Virginia with a capital of $25,000 for the purpose of conducting a general coal mining business. H. S. Odbert, Herbert Sheldon, M. H. Carpenter, Frank McIntosh and G. T. Odbert are the incorporators.

The Morgantown Coal Co., of Catawba, W. Va., has been incorporated with $300,000 capital for the purpose of doing a general coal mining business. F. D. Stevenson, H. B. Hershey, George W. Schwartzenburg, William Whitington and A. A. Rogers are the incorporators.

The Round Bottom Coal & Coke Co., of Scottdale, Pa., has been incorporated with $200,000 capital for the purpose of developing a tract of 1,689 acres of the Pittsburg seam near Moundsville, W. Va. The directors of the company are: J. W. and Robert Wiley, J. M. Zimmer, C. A. Colborn and D. L. Sherrick.

The Sackett Coke Co., of Connellsville, Pa., will be incorporated shortly with $115,000 capital. The directors are: W. W. Parshall, Uniontown, Pa.; H. R. Sackett, R. F. Hedges, A. A. Eberhardt, Smithfield, Pa., and W. J. Lyons, Gans, Pa.

The Lawton Mfg. Co., Wabash Ind., capital $50,000, has been incorporated to manufacture engines and boilers.

The Commonwealth Railway Supply Co., Chicago, capital $2,500, has been incorporated to manufacture and deal in railway supplies.

The Differential Ore Crushing Co., Grand Rapids, Mich., with a capital of $500,000 common and $50,000 preferred, has been incorporated for the manufacture and sale of all kinds of ore crushing, grinding, pulverizing, separating and mining machinery. The management is vested in Thomas W. Strahan, chairman; Frank B. Chapin, treasurer; Lorenzo D. Steward, secretary; and Benn M. Corwin and Frank A. Lamar. The stock is subscribed by Thomas W. Strahan, Frank B. Chapin, Lorenzo D. Steward, Benn M. Corwin and Frank C. Lamar, $10,000 each, and Frank B. Chaplin, trustee for George S. Knapp, of Evanston, Ill., $449,950, common stock, and $50,000 preferred stock.

The American Foundry & Machine Co., Atlanta, Ga., has been incorporated with a capital of $10,000.

J. A. Luetka and L. K. Harvey, of Huron, S. D., will establish a machine shop and foundry at New Ulm, Minn.

Fires and Accidents:—

The plant of the Terre Haute Shovel & Tool Co., Terre Haute, Ind., was burned April 8th.

The Ironton Foundry, Ironton, Ohio, suffered from a destructive fire last week.

The plant of the John Rice Foundry & Machinery Co.,

Stevens Point, Wis., was damaged by fire to the extent of $3,000 a few days ago. The plant furnished all gray iron castings for the Wisconsin Central Railroad.

New Construction:

Improvements to be made at the plant of the American Steel & Wire Co., at Worcester, Mass., will consist principally in changes to effect economy in power production. A number of engines will be compounded and condensers installed, and electric motors will be placed to do away with shafting.

The Easton Steel Co., Pottsville, Pa., is considering the advisability of doubling the original plans for the plant. The erection of a bridge works in the southern part of Pottstown and blast furnace in the Fishbank Valley is being considered.

The Star Furnace of the Star Furnace Co., of Jackson, O., is being relined and will be blown in again in a few days.

The Oshkosh Logging Tool Co., Oshkosh, Wis., will soon begin the erection of its new plant. The first building is to be 65x150 feet, two stories.

The Nelson Gas Engine & Automobile Co., Harlan, Ia., is erecting a new plant 40x120 feet, with an L 40x40 feet which will be used as a foundry. Equipment has been purchased.

The Sterlingworth Railway Supply Co., Easton, Pa., will build additions to its malleable department, which will increase its capacity 5,000 tons per annum.

The Hudson Rolling Mill Co., Bloomfield, N. J., manufacturer of sheet and ingot metals, has increased its capital to $150,000, and will erect a new plant. In addition to the present lines the manufacture of sheet copper, brass and other metals will be taken up, eventually extended to include rods, wire and tubing.

The Builders' Iron Foundry, Providence, R. I., informs us that the newspaper reports that it expects to erect a new foundry on land purchased some time ago are not correct, as no plans have been prepared and it is not expected a foundry will be built at any time in the near future.

The New Castle Forge & Bolt Co., New Castle, Pa., which on January 1 increased its capital stock from $75,000 to $300,000, has let contracts for large additions to its plant, consisting of an extension to the present building, 112 feet long by 60 feet, together with machine shop 30x80. The company is also erecting a new steel and brick building which will parallel the old building, dimensions of same, 342x80. There will be a space of 40 feet between the two buildings which will be covered and used as yard for stock and in which will be operated a 15 ton crane for unloading and handling raw material. The company has also closed a contract with the American Furnace Co. for installing a number of generating and recuperating furnaces of the Swindell patent and expects to have these different departments in operation by July. The company will have one of the most modern equipped plants in the country for the manufacture of bolts, rivets, car, drop and general forgings, chain, etc.

The Wisconsin Foundry & Steel Works, which recently increased its capital stock from $25,000 to $50,000, is building a temporary addition to its foundry, 34x34, which will be replaced by a building 60x60; also has the foundation in readiness for a stock-room, which will be 60x60, sides and roof of which will be covered with corrugated iron. The company does not need any additional machinery at this time.

The Niles Car & Mfg. Co. began April 10 the erection of a new combination blacksmith and machine shop, 60x120 feet, at Youngstown, O. The new building will stand north of the present plant.

John Jr., Richard and Lewis Flum, Hamilton, O., will build a foundry 60x150 feet with modern equipment.

The Fairbanks Construction Co., Marion, O., will build a plant for the manufacture of steam shovels, dredges, wrecking cranes and other machinery of like character. The company has purchased two acres in addition to the seven and one-half acre tract recently acquired. The first sale of a dredge was made a few days ago, the company agreeing to deliver the machine four months from the date of sale. Plans for the plant have been prepared and work on the construction will be begun at once.

Work on the open-hearth steel plant of the Cambridge-Byesville Steel Co., Byesville, O., has been commenced. The stockholders have elected the following directors: L. C. Bailey, Marietta; A. A. Taylor, Cambridge; L. C. Taylor, Cambridge; J. S. Black, Cambridge. The directors organized as follows: C. L. Bailey, president; A. A. Taylor, treasurer; L. C. Taylor, secretary; J. S. Black, general counsel.

The Standard Motive Power Co., Canal Dover, O., has let the contract for its plant to the Pittsburg Engineering Co. Work will be commenced at once and the company expects to be manufacturing locomotives by next January. The company was organized recently with a capital of $10,000,000. The principal stockholders are eastern capitalists. The officers are: Howard McNutt of New York, president; Andred Deis, Canal Dover, first vice-president; Arthur P. Dodge, second vice-president; W. H. Hoar, secretary and treasurer; Thornton Chase, assistant secretary and treasurer; Waldo G. Morse, solicitor; Milton V. Blake, general manager, and W. D. Watkins, general superintendent. The new buildings for which the contract has been let consist of an erecting shop 500x50 feet; boiler shop 500x80 feet; blacksmith shop 300x80 feet; power house and heating system. The contract includes the construction of seven large traveling cranes.

Stevenson & Co., Baltimore, Md., will build a machine shop 60x105 feet, three stories, at a cost of $15,000.

The stockholders of the Hudson River Foundry Co., Poughkeepsie, N. Y., have elected the following directors: M. Schwartz, E. Lyman Brown, S. J. Wright, D. W. Wilbur, and Frank B. Lown. A number of improvements are being made at the foundry of this company. One building 60x80 feet is to be erected to relieve the condition of the molding shop, and a large addition is being built to the brass molding plant.

The Etna Foundry, Springfield, Ill., has had plans prepared for an addition which will consist of a machine shop 120x140 feet and an office building 21x40 feet, two stories.

The Lancaster Boiler Co., Lancaster, O., recently incorporated, is making preparations for the building of a plant.

Marshall B. Lloyd, 1610 Central Ave., N. E., Minneapolis, is about to enlarge his plant in order to manufacture his steel wheel wagons under a patent which he has secured.

The Crawfordsville Wire & Nail Co., Crawfordsville, Ind. will erect a galvanizing plant 200x50 feet.

The plant of the Wilmington Malleable Iron Co., Wilmington, Del., which is now being erected, will consist of the following buildings: Foundry, one story, 22x460 feet, cost $88,000. Annealing house, one story, 220x460 feet, cost $80,000. Carpenter shop, one story, 50x70 feet, cost $10,000. Boiler house, one story, 55x80 feet, cost $15,000. Pattern safe, two stories, 50x70 feet, cost $10,000. Office, two stories, 40x70 feet, cost $8,000. The work is being done by the Tidewater Building Co., of New York. Concrete, brick and iron are to be the principal materials.

The Flint-Lomax Electric & Mfg. Co., Denver, whose plant was damaged by fire a few weeks ago, has nearly completed rebuilding. The company will be glad to receive new catalogues as theirs were destroyed by the fire.

Plans are being made by the Falk Mfg. Co., Milwaukee, for the erection of a three-story pattern storage house. The new building will cost about $30,000.

When the Milmine Iron & Steel Co., Toledo, O., recently incorporated, is thoroughly organized, it will succeed H. B. Milmine & Co., carrying on the same line of business, namely, structural steel work; all kinds of

grey iron castings; and handling wrought iron, steel and cast iron material. It is the intention to extend the plant of H. B. Milmine & Co., as present facilities are not capable of landing the business.

The Union Motor Co., Portage, O., intends to build in the near future. It is now manufacturing gas and gasoline engines, from 1¼ to 7 horsepower, water and air cooled. The company is putting an engine on the market for farm purposes, etc., 2½ actual horsepower, air cooled. The company will also control and market the Caldwell perfection oil well polish rod stuffing-box. It will have a well equipped foundry.

The new works of the Ball Engine Co., Erie, Pa., are rapidly approaching completion, and the machine tools will soon be placed in position. These works will be modern in every respect; the tools will be of the latest and best types and will be electrically driven. The demand for the company's self-oiling engines still continues, and the present works of the company are crowded with many months' work ahead, so that it is very probable that both works will be kept going, for some time to come at least.

The Bates Machine Co., Joliet, Ill., whose foundry plant was recently destroyed by fire, will rebuild on a much larger scale. The new foundry will be equipped with electric traveling cranes and will be modern in every particular.

The Niles (O.) Car Mfg. Co. has decided to build a large addition.

The Warren Sheet Metal Co., Warren, O., last week broke ground for the erection of its new plant. The power house will be 34x47, machine shop 42x108, galvanizing plant 30x60, and warehouse 46x108 feet and three stories high.

The C. Rossler Mfg. Co., Buffalo, intends to erect a building as an addition to its present plant. About 125 more men will be employed. The company owns the C. Rossler Gasoline Motor & Supply Co.

The Bateman Mfg. Co., Grenloch, N. J., is laying the foundation for a gray iron foundry, 60x120 feet, which, it is expected, will be in operation by August 1.

The Union Mining Co., Mt. Savage, Md., has contracted for the erection of a foundry, 41x100 feet, with 10-ton traveling crane; cost, $10,000.

The National Iron Works, St. Louis, has increased capital from $10,000 to $50,000 for enlarging plant, and will expend $25,000 on buildings, exclusive of machinery. No contracts have been let.

John Lavelle and his son, Thomas Lavelle, will build a brass and iron foundry at Anderson, Ind.

The Litchfield Foundry & Machine Co., Litchfield, Ill., has begun the brick work on its new addition, which will be 100x60 feet. The building will be complete in May.

Herpel Bros., West Reynoldsville, Pa., will build a foundry and machine shop, 80x40 feet.

The Pittsburg District:—

Contracts are shortly to be awarded by the Jones & Laughlin Steel Co., Pittsburg, for the erection of two additional blast furnaces at the Eliza plant, on Second Ave. A number of contracts were practically closed about six months ago but were later revoked, it is asserted, when negotiations for the sale of the property to the United States Steel Corporation were begun. The placing of new contracts at this time would indicate that all negotiations for the sale of the property are now off and that the improvement program, outlined some months ago, will be fully carried out.

The Damascus Nickel Steel Co., operating a crucible steel plant at Carnegie, Pa., has decided to install two small acid open-hearth furnaces, together with three stands of 16-inch rolls and one stand of 10-inch rolls. Contracts for the installation of the rolling mills were awarded the Wheeling Mold & Foundry Co. The plant is operating in full at present and manufactures Damascus and nickel tool steels.

The Pittsburg Engineering Co. has been awarded the contract for the erection of the plant and the installation of a large portion of the machinery for the Standard Motive Power Co., of Canal Dover, O. This company was recently organized with a capital of $10,000,000 to engage in the manufacture of locomotives. All the buildings are to be of steel construction and will have the following dimensions: Erecting and machine shop, 150x100 feet; boiler shop, 80x500 feet; blacksmith shop, 80x300 feet. A number of smaller buildings are also to be erected to be used for warehouse purposes, oil, paint and tool shops. The main building will contain a 100-ton crane, while two smaller cranes of 30 and 15-tons capacity each will be installed. Work on the erection of the plant is to be pushed so that operations can commence about the first of next year.

There have come to the Pittsburg office of *The Iron Trade Review*, through the courtesy of W. C. Moreland, secretary of the Jones & Laughlin Steel Co., two large steel engravings, handsomely framed, the one showing the South Side plants of the company, while the other is an excellent reproduction of the Eliza furnace plant and coke ovens.

At a special meeting of the Mechanical Section of the Engineers' Society of Western Pennsylvania, held Tuesday evening, March 14, T. F. Webster read a paper on "Coal Handling Machinery." On Saturday evening, April 18, the members of the Engineers' Society have been invited to inspect the Frick Building with its many interesting features.

The machinists employed in the plants located in the Pittsburg District have decided to ask for an advance of 15 percent on July 1. The minimum scale now calls for the payment of $2.75 for 9 hours work. The molders have also decided to ask for an advance, but the increase desired has not yet been decided upon.

The Scottdale plant of the United States Cast Iron Pipe & Foundry Co. has commenced making improvements that will permit the casting of pipes up to 60 inches in diameter. When plant B was built several years ago a pit was constructed that would permit the casting of pipe up to 72 inches in diameter, but the equipment to hande this size pipe was never installed. A 10-ton crane is to be erected over the pit for handling the heavy cores to be used, and the core ovens that have been used for the smaller cores are to be torn out and rebuilt. The smaller of the two cupolas is also to be replaced with one of 150 tons capacity, which will give the plant a melting capacity of 300 tons daily. A large hydraulic press for testing these large pipes will also be installed and a new testing house is to be built.

The new plant of the Standard Scale & Supply Co., of Pittsburg, Pa., will be erected on a site of 8 acres at Beaver Falls, Pa., located on the Pittsburg, Fort Wayne & Chicago Railroad. The buildings will consist of a foundry 80x142, machine shop, forge and wood working shop 100x200 feet; boiler house, 36x50 feet; assembling room, 100x225 feet; power house, 31x36 feet; pattern storage building, 40x70 feet. Contracts for the erection of the buildings have been placed with the Fort Pitt Bridge Co., of Canonsburg, Pa., while the contracts for all the electrical equipment have been placed with the Westinghouse Electric & Mfg. Co. The officials of the company are: F. B. Gill, chairman; J. C. Reed, treasurer, and William H. Black, secretary.

General Industrial Notes:—

Some of the more important Corliss engine contracts awarded to the C. & G. Cooper Co., Mt. Vernon, O., in the past few weeks are as follows: Ingersoll-Sergeant Drill Co., of New York, four cross compound direct connected engines to furnish power for the new shops at Phillipsburg, N. J; National Cash Register Co., Dayton, O., one 1,250-horsepower cross compound direct connected engine, duplicating the one now in operation; American Cement Co., Egypt, Pa., one 28x48 mill engine; Merrimack Manufacturing Co., Huntsville, Ala., one 2,000-horsepower cross compound condensing engine; Indianola Heating & Lighting Co., Columbus, O., one 20 and 36x42 cross compound engines direct connected to 400-kilowatt alternating current generator; Brandon Mills, Greenville, S. C., one 52x48 low pressure side of a cross compound engine; Quaker Portland Cement Co., Easton, Pa., two 18 and 40x42 cross compound engines direct connected to 400-kilowatt generators, two 22 and 44x42 cross compound mill engines and two 18 and 36x42 cross compound mill engine; Old Colony Steet Railway Co., Boston, one 32

and 64x48 cross compound condensing engine direct connected to an 1,800-kilowatt generator; New York & Long Island Traction Co., Hempstead, N. Y., two 20 and 40x42 Tandem compound condensing engines direct connected to 500-kilowatt alternating current generators; Terre Haute Electric Co., Terre Haute, Ind., one 24 and 44x48 cross compound engine direct connected to a 600-kilowatt generator; Ansted & Burke Co., Springfield O., one 14 and 26x42 cross compound condensing girder engine; Cincinnati & Columbus Traction Co., Cincinnati, O., two 26 and 50x48 cross compound condensing engines direct connected to 800-kilowatt alternating current generators.

The new furnace plant of the Pioneer Iron Co., of Marquette, Mich., is completed and will probably be blown in on the 14th or 15th inst. It is expected that this will be one of the most modern and complete in existence. Austin Farrell is the Manager.

The Cameron Tool Co., Cameron, W. Va., recently incorporated, has purchased the Cameron Tool Plant which was operated by individuals. The company will operate it more extensively, but will not build at present.

The Orient Mfg. Co., Dayton, O., will move its plant to North Tonawanda, N. Y. and the building is now being constructed, which will be 40x150 feet, three stories and basement. There will be a side track, and the building will be equipped with wood-working machinery, and use electric power. The company manufactures novelties in the furniture line, such as foot stools, ottomans, jardiniere and umbrella stands, both wood and steel.

Oliver M. Simmons, Indianapolis, is looking for a location for a foundry and machine shop to manufacture steam and hot water boilers, and is considering the advisability of locating at DeGraff, O.

The directors of the Goshen Foundry & Specialty Co., Goshen, Ind., have decided to remove their plant to Osceola, Ind. Citizens of Mishawaka and Osceola have subscribed $2,500 and four acres to secure the concern.

The ruins of the nail factory which have stood for years on Breaker Island near Troy, N. Y., are being divested of all iron and machinery, and by May 1 the premises will be in possession of the Continuous Rail Joint Co. The nail plant property is owned by the United States Steel Corporation, which some months ago obtained control of the steel works of the island. The machinery and iron which had been exposed for years are said to be in a remarkable state of preservation.

The improvements to be made to the plant at Muncie, Ind., of the American Sheet Steel Co. will include a water purifying plant and hospital in which employes who are injured can be cared for, and the fireproofing of several of the buildings.

The Western Motor Co., of Logansport, Ind. has purchased the property and good will of the Logansport Foundry and the Rutenber Motor Co., both of Logansport, and the two companies have been merged, the business to be carried on under the same management. Several additions are contemplated. The officers of the new company are: Robert Parker, Remington, Ind., president; E. A. Rutenber, patentee of the Rutenber motor, vice-president; F. B. Wilkinson, secretary and treasurer.

The directors of the Bromley Foundry Co., Albion, N. Y., have elected the following officers: president, John M. Budington; secretary and general manager, Warren T. Bromley; treasurer, Daniel W. Hanley. The plant has been leased, including the machinery.

The Petersburg Iron Works, Petersburg, Va., has elected the following officers: President, Fritz Sitterding, of Richmond; vice-president, C. P. E. Burgoyne, of Richmond; secretary and treasurer, J. Wilkes Madison. These, with L. J. Morris and E. P. Valentine, of Richmond are directors. Mr. Sitterding, the newly elected president, is president of the Virginia Passenger & Power Co.

The reorganization of the Hardie-Tynes Machine & Foundry Co., Birmingham, Ala., has been effected, and the capital stock of the company increased to $200,000. The new name is the Hardie-Tynes Mfg. Co., the officers, directors and stockholders remaining the same, and it is announced that the same business policy will be preserved. The company has recently made some extensive improvements, and the contract has just been let for the erection of an addition of 100 feet to the main building of the machine shop. Other extensions and improvements are in contemplation. The company is making a specialty of its Corliss engines.

The J. H. Gillon Machine Co., Waycross, Ga., has purchased the Syfan foundry, which has been closed for some time. The purchasers will move the machinery to its own shops.

The reorganization of the Structural Steel Car Co., Canton, O., is now assured. At a recent meeting of the directors Attorney Francis M. Griffin, representing C. F. Howe, of New York, delivered a draft for $500,000 to the officers of the company to pay for additional stock.

The Deming Co., Salem, O., will begin the manufacture of pumps in its new plant in about three weeks. Equipment installed includes a ten ton crane purchased from the Northern Engineering Co., heating apparatus from the American Blower Co., a Colburn boring mill, and a Detrick & Harvey drilling machine.

The Massillon Foundry Co., Massillon, O., recently incorporated, is simply a change from a co-partnership to a company.

The Curdsman Machine Co., Cincinnati, is considering the advisability of moving its plant to Greenfield, Ind.

The E. J. Manville Machine Co., Waterbury, Conn., has announced that it will sell its property and seek another location either in Waterbury or Bridgeport, Conn. The company has been enjoying a large business, and finds that it cannot buy land near its present location to erect the necessary buildings.

President A. W. Thompson, of the Republic Iron & Steel Co., has announced that the rolling mill of the company at Springfield, Ill., will resume operations some time between the 1st and 15th of May. The plant has been idle for a long period and extensive improvements have been made.

The plant of the Anniston Rolling mill Co., Anniston, Ala., was sold April 18 and was bid in by W. W. Stringfellow for the original owners. No definite arrangements for the resumption of work have yet been made, but it is probable that the plant will be put in operation at an early date.

The Central Electric Co., of Youngstown, O., recently organized, has purchased electrical patents from Edward McGarvey for $60,000 on electrical indicators and weight recorders. A new plant will be erected at Struthers, O., for the purpose of manufacturing the machines.

The Youngstown Car Mfg. Co., of Youngstown, O., has decided to build steel cars and work on the installation of new machinery will be commenced shortly. At the present time the output of the plant consists of wooden cars entirely and much repair work is also done.

The Keystone Coal & Coke Co., Greensburg, Pa., has placed an order with the Cambria Steel Co. for the erection of 225 steel cars.

The Continental Rolling Mills, Wheatland, Pa., were again placed in operation last week. The plant is ordered sold some time in May. When the order was issued for the sale of the plant it was not believed that operations would again be resumed until after the sale was made.

N. W. Whatley has purchased for development 200 acres of iron ore lands near Talladega, Ala.

The Australian engineering and contracting firm of Noyes Bros., of Sydney and Melbourne, has just placed a large engine contract with Westinghouse, Church, Kerr & Co., Chicago.

The American Engineering & Foundry Co., recently incorporated, of Los Angeles, Cal., has purchased the stock of the Partridge & Alford Iron Works and is not a new enterprise. The officers are: W. E. B. Partridge, president; Alpheus Redman, vice president; G. Davis, secretary and treasurer.

The Portsmouth Foundry & Machine Works Co., Portsmouth, O., has recently acquired additional land adjoining its foundry, but advises us that it has no plans for changes beyond placing the cleaning shed on the recently purchased property, which will also be used for flask and foundry yard.